

# **Chemistry**

## **A.E.O and BPS 16 (SSE)**

**This book could use for test preparation of  
(NTS, PPSC, PMS, CSS, GAT)**

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YOUR TEST**

1. Isotopes differs in

- A.** arrangement of electrons in orbitals      **B.** position in the periodic table
- C.** properties depend upon mass      **D.** chemical properties

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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2. The mass of one mole of electron is

- A.** 1.008      **B.** 0.55
- C.** 0.184      **D.** 1.637

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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3. The volume occupied by 1.4g CO at S.T.P is

- A.** 22.4 dm<sup>3</sup>      **B.** 2.24 dm<sup>3</sup>
- C.** 1.12 cm<sup>3</sup>      **D.** 1.12 dm<sup>3</sup>

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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4. The number of atoms in a molecule determines
- |                  |                  |
|------------------|------------------|
| A. macromolecule | B. macromolecule |
| C. molecularity  | D. atomicity     |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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5. Which of the following set has all species isoelectronic
- |                             |  |
|-----------------------------|--|
| A. F - Cl - Br              | B. $\text{Li}^{+1}$ - $\text{Na}^{+1}$ - $\text{K}^{+1}$ |
| C. F - Ne - $\text{Na}^{+}$ | D. $\text{H}^{+}$ - $\text{H}^{-}$ - H                   |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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6. Which element has same isotopes like palladium
- |            |            |
|------------|------------|
| A. Nickel  | B. Calcium |
| C. Cadmium | D. Tin     |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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7. Water absorber used in combustion analysis is

- |                             |   |
|-----------------------------|---|
| <b>A.</b> 50% KOH           | <b>B.</b> Lime water                          |
| <b>C.</b> CaCl <sub>2</sub> | <b>D.</b> Mg (ClO <sub>4</sub> ) <sub>2</sub> |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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8. A limiting reactant is one which

- |   |  |
|---|--|
| <b>A.</b> is taken in lesser quantity in grams as compared to other reactants | <b>B.</b> is taken in lesser quantity in volume as compared to other reactants |
| <b>C.</b> gives the maximum amount of the product which is required           | <b>D.</b> gives the minimum amount of the product under consideration          |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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9. The type of filtering media used for filtration depending upon

- |                               |                              |
|-------------------------------|------------------------------|
| <b>A.</b> Nature of reactants | <b>B.</b> Nature of crucible |
|-------------------------------|------------------------------|

C. Nature of product

D. Nature of precipitate

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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10. A safe and more reliable method for drying the crystal is

A. Hot air currents

B. folds of filter paper

C. oven

D. Vacuum desiccator

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

11. A method of separation of components from its solution using Distribution law is

A. Sublimation

B. Crystallisation

C. Solvent extraction

D. Distillation

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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12. A real gas obeying vander waals equation will resemble the ideal gas if

A. Both a and b are small

B. Both a and b are large

C. a is small and b is large

D. a is large and b is small

### Answer & Explanation

**Answer:** Option A

**Explanation:**

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13. Equal masses of methane and oxygen are mixed in empty container at 250°C. The fraction of total pressure exerted by oxygen is

- A. one / seventeen                      B. sixteen / seventeen  
C. one / three                              D. two / three

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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14. Plasma is used in

- A. Fluorescent bulb                      B. Neon signs  
C. Lasers                                      D. All of these

### Answer & Explanation

**Answer:** Option D

**Explanation:**

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15. The molecules of CO<sub>2</sub> in dry ice form

- A. Ionic crystal                              B. Covalent crystal

C. Molecular crystal

D. Any type of crystal

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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16. Which of the following is pseudo solid

A.  $\text{CaF}_2$

B. NaCl

C. Glass

D. Diamond

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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17. Only London dispersion forces are present among the

A. Molecules of water in liquid state

B. Atoms of helium in gaseous state at high temperature

C. Molecules of hydrogen chloride gas

D. Molecules of solid iodine

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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18. Bohrs model is contradicted by

- |   |                                 |
|---|---------------------------------|
| <b>A.</b> Plancks theory                    | <b>B.</b> Dual nature of matter |
| <b>C.</b> Heisenbergs uncertainty principle | <b>D.</b> All of these          |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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19. Quantum number values for 3p orbitals are

- |                       |                       |
|-----------------------|-----------------------|
| <b>A.</b> $n=3$ $l=2$ | <b>B.</b> $n=3$ $l=0$ |
| <b>C.</b> $n=3$ $l=1$ | <b>D.</b> $n=3$ $l=3$ |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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20. When fast neutron strike the nucleus of nitrogen the particles ejected are

- |                                |                               |
|--------------------------------|-------------------------------|
| <b>A.</b> $\alpha$ - particles | <b>B.</b> $\beta$ - particles |
| <b>C.</b> $\gamma$ - rays      | <b>D.</b> X - rays            |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

21. Which specie has unpaired electrons in antibonding molecular orbitals

A.  $O_2^{+2}$

B.  $N_2^{-2}$

C.  $B_2$

D.  $O_2^{-2}$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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22. Atomic radius can be determined by

A. X - ray diffraction

B. Spectrophotometer

C. Optical microscope

D. Electron microscope

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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23. For a given process the heat changes at constant pressure ( $q_p$ ) and at constant volume ( $q_v$ ) are related to each other as

A.  $q_p = q_v$

B.  $q_p < q_v$

C.  $q_p > q_v$

D.  $q_p = q_v / 2$

**Answer & Explanation**

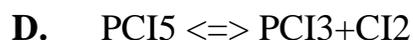
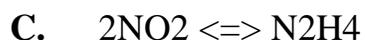
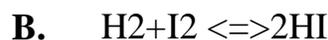
**Answer:** Option C

**Explanation:**

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24. For which system does the equilibrium constant  $K_c$  has unit of (concentration)<sup>-1</sup>



**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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25. Solubility product of AgCl is  $2.0 \times 10^{-10} \text{ mol}^2 \text{ dm}^{-6}$ . Maximum Concentration of Ag<sup>+</sup> ions in the solution is

A.  $2.0 \times 10^{-10} \text{ mol dm}^{-3}$

B.  $1.414 \times 10^{-5} \text{ mol dm}^{-3}$

C.  $1.0 \times 10^{-10} \text{ mol dm}^{-3}$

D.  $1.0 \times 10^{-5} \text{ mol dm}^{-3}$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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26. 18g glucose is dissolved in 90g water the relative lowering in vapour pressure is equal to

A. ?

B. 5.1

C. 6

D. one/fifty one

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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27. Which of the following solution has the highest boiling point?

- |                               |                                       |
|-------------------------------|---------------------------------------|
| <b>A.</b> 5.85% NaCl Solution | <b>B.</b> 18.0 % glucose solution     |
| <b>C.</b> 6.0 % urea solution | <b>D.</b> All have same boiling point |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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28. Stronger is the oxidizing agent greater is the

- |                               |  |
|-------------------------------|--|
| <b>A.</b> Oxidation potential | <b>B.</b> Redox potential              |
| <b>C.</b> e.m.f of cell       | <b>D.</b> standard reduction potential |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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29. Which of the following can be used in laptops?

- |                                |                            |
|--------------------------------|----------------------------|
| <b>A.</b> Silver oxide battery | <b>B.</b> Fuel cell        |
| <b>C.</b> Nickel cadmium cell  | <b>D.</b> Lead accumulator |

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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30. Which is true about Zn-Cu galvanic cell?

- |                                       |  |
|---------------------------------------|--|
| <b>A.</b> Reduction occurs at anode   | <b>B.</b> $K^+$ ion transfer from salt bridge to left beaker of $ZnSO_4$ |
| <b>C.</b> Oxidation occurs at cathode | <b>D.</b> Anode is negatively charged                                    |

### Answer & Explanation

**Answer:** Option D

**Explanation:**

31. Which is the unit of (K) rate constant for zero order reaction?

- |  |  |
|--|--|
| <b>A.</b> $s^{-1}$                             | <b>B.</b> $\text{mol dm}^{-3} s^{-1}$          |
| <b>C.</b> $\text{mol}^{-1} \text{dm}^3 s^{-1}$ | <b>D.</b> $\text{mol}^{-2} \text{dm}^6 s^{-1}$ |

### Answer & Explanation

**Answer:** Option B

**Explanation:**

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32. Nitrates of which pair gives different products on thermal decomposition

- |                |                 |
|----------------|-----------------|
| <b>A.</b> Na K | <b>B.</b> Mg Ca |
|----------------|-----------------|

C. Li Na

D. Li Ca

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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33. Which is carnalite

A. KCl

B. NaCl

C.  $\text{KCl} \cdot \text{MgCl}_2 \cdot 6\text{H}_2\text{O}$

D.  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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34. Keeping in view the size of atom which is in correct order

A.  $\text{Mg} > \text{Sr}$

B.  $\text{Ba} > \text{Mg}$

C.  $\text{Lu} > \text{Ce}$

D.  $\text{Cl} > \text{I}$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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35. Which one does not give borax bead test

- A. Copper sulphate                      B. Barium sulphate  
C. Cobalt sulphate                      D. Nickel sulphate

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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36. Which one is not the use of silicones

- A. Lubricant                                  B. Water repellent film  
C. Rubber sheet                              D. Medicine

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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37. The most reactive allotropic form of phosphorus is

- A. White    B. Redox potential  
C. Black    D. Violet

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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41. The most paramagnetic element is

- A. Iron
- B. Cobalt
- C. Chromium
- D. Manganese

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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42. In the complex  $[\text{Cr}(\text{OH})_3(\text{H}_2\text{O})_3]$  the coordination number is

- A. 2
- B. 3
- C. 4
- D. 6

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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43. Which one of the following looks odd

- A.  $\text{H}_2\text{SO}_4$
- B.  $\text{KMnO}_4$
- C.  $\text{H}_2\text{S}$
- D.  $\text{K}_2\text{CrO}_4$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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44. A great variety of the organic compounds is due to its property of carbon

- A. Show tetravalency                      B. Exhibit catenation  
C. Show isomerism                      D. Can form multiple bonds

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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45. In 1 - pentene -4- yne the carbon exhibit hybridization

- A.  $sp^3 - sp^2$                       B.  $sp^2 - sp$   
C.  $sp^2 - sp$                       D.  $sp^3 - sp^2 - sp$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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46. Vinyl acetylene combines with hydrochloric acid produces

- A. Divinyl acetylene                      B. Ethylidene dichloride  
C. Chloroprene                      D. 1 - 3 - 3 - trichloro butane

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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47. When benzene is heated in air with  $V_2O_5$  at  $450^\circ\text{C}$  yields

- |            |                     |
|------------|---------------------|
| A. Phenol  | B. Maleic anhydride |
| C. Glyoxal | D. Benzoic acid     |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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48. When toluene reacts with chlorine in sunlight the first major product is

- |                    |  |
|--------------------|--|
| A. Benzyl chloride | B. Benzal dichloride                   |
| C. O-chlorotoluene | D. O-chlorotoluene and P-chlorotoluene |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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49. Which one of the following will be sulphonated readily?

- |                  |            |
|------------------|------------|
| A. Chlorobenzene | B. Toluene |
| C. Nitrobenzene  | D. Benzene |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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50. Which one of the following is not a good leaving group ?

- |                                  |                    |
|----------------------------------|--------------------|
| A. HSO <sub>4</sub> <sup>-</sup> | B. Cl <sup>-</sup> |
| C. OH <sup>-</sup>               | D. Br <sup>-</sup> |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

51. When CO<sub>2</sub> is made to react with ethyl magnesium iodide in dry ether followed by acid hydrolysis yields

- |                    |                  |
|--------------------|------------------|
| A. Carboxylic acid | B. Ethanoic acid |
| C. Propanoic acid  | D. Butanoic acid |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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52. The process of fermentation involves all the enzymes except

- |             |              |
|-------------|--------------|
| A. Diastase | B. Invertase |
| C. Zymase   | D. Sucrase   |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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53. Ethyl chloride on reduction in the presence of Zn/HCl produces

- A.** n. butane
- B.** Ethanol
- C.** Ethane
- D.** Diethyl ether

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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54. Which one does not exhibit aldol condensation

- A.** Ethanal
- B.** Acetone
- C.** Benzaldehyde
- D.** Butanone

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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55. For industrial preparation of CH<sub>3</sub>CHO catalytic promoter is

- A.** PdCl<sub>2</sub>
- B.** Cu<sub>2</sub>Cl<sub>2</sub>
- C.** CuCl<sub>2</sub>
- D.** PbCl<sub>2</sub>

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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56. The common name of propane -1 3-dioic acid is

- |                        |                         |
|------------------------|-------------------------|
| <b>A.</b> Oxalic acid  | <b>B.</b> Succinic acid |
| <b>C.</b> Malonic acid | <b>D.</b> Fumaric acid  |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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57. Which of the following is not a fatty acid?

- |                          |                         |
|--------------------------|-------------------------|
| <b>A.</b> Propanoic acid | <b>B.</b> Acetic acid   |
| <b>C.</b> Phthalic acid  | <b>D.</b> Butanoic acid |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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58. Industrial materials thermal power stations are coated with

- |                            |                              |
|----------------------------|------------------------------|
| <b>A.</b> Polyester resins | <b>B.</b> Epoxy paints       |
| <b>C.</b> polyamide resins | <b>D.</b> Polyvinyl chloride |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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59. Which one of the following fertilizers provides the nitrogen and phosphorus to the plant?

- |                         |                           |
|-------------------------|---------------------------|
| A. Urea                 | B. Calcium superphosphate |
| C. Diammonium phosphate | D. Potassium nitrate      |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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60. Chlorination of water may be harmful if the water contains

- |                   |                     |
|-------------------|---------------------|
| A. Ammonia        | B. Dissolved oxygen |
| C. Carbon dioxide | D. All              |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

1. What is the relative rate of effusion of CO and CO<sub>2</sub>?

- |   |   |
|---|---|
| A. CO is 1.25 times faster than CO <sub>2</sub> | B. CO is 3.75 times faster than CO <sub>2</sub> |
|---|---|

- C. CO is 1.25 times faster than CO      D. Both diffuse at the same rate

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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2. Which of these gases diffuse more quickly than oxygen?

- A. H<sub>2</sub>S      B. NO  
C. Cl<sub>2</sub>      D. N<sub>2</sub>O

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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3. Which of the following is not considered as an intermolecular force between molecules?

- A. Coordinate covalent bonds      B. Hydrogen bonds  
C. Debye forces      D. London dispersion forces

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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4. The weakest (in strength) of the following intermolecular forces is
- |  |                              |
|--|------------------------------|
| <b>A.</b> Hydrogen bonding                 | <b>B.</b> Vander Waals force |
| <b>C.</b> Forces among the polar molecules | <b>D.</b> Ionic bond         |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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5. Ideal gasses have all the following characteristics except.
- |  |  |
|--|--|
| <b>A.</b> Absence of intermolecular forces | <b>B.</b> Collisions among the molecules of an ideal gas are perfectly elastic |
| <b>C.</b> The molecules occupy no space    | <b>D.</b> All of the above are correct   |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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6. Which of the following statements is true about plasma
- |   |  |
|---|--|
| <b>A.</b> It may be the first state of matter | <b>B.</b> It is not a phase transition |
| <b>C.</b> It is a conductor of electricity    | <b>D.</b> All of the above             |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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7. Which statement is correct

A.  $PV = nRT$

B.  $P = \rho RT$

C.  $PM = \rho RT$

D. all above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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8. Under what conditions the gases deviate from the ideal behavior?

A. High temperature

B. Low temperature

C. High pressure

D. b and c

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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9. Which one has the lowest density at room temperature?

A. Ne

B. N<sub>2</sub>

C. NH<sub>3</sub>

D. CO

### **Answer & Explanation**

**Answer:** Option C

**Explanation:**

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10. The introduction of Kelvin scale in thermometry is according to

- |                |                |
|----------------|----------------|
| A. Boyles law  | B. Charles law |
| C. Daltons law | D. Grahams law |

### **Answer & Explanation**

**Answer:** Option B

**Explanation:**

11. 0.5 mole of nitrogen gas and 0.5 mole of carbon monoxide gas at STP have same

- |               |                 |
|---------------|-----------------|
| A. Value of a | B. Mass         |
| C. Atoms      | D. Both b and C |

### **Answer & Explanation**

**Answer:** Option D

**Explanation:**

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12. At constant temperature the pressure of an ideal gas is doubled its density becomes

- |         |           |
|---------|-----------|
| A. Half | B. Double |
|---------|-----------|

C. Same

D. None

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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13. The diffusion of gases at absolute zero will be

A. Unchanged

B. Slightly decreased

C. Slightly increased

D. Zero

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

14. Which of the following option is incorrect about gases?

A. All molecules move with same speed

B. All molecules behave independently

C.  $PV / RT = n$

D. All gases cannot be liquefied through Linds Method

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

15. Critical temperature for different gases is different and depends upon

- A. Size of molecule
- B. Shape of molecule
- C. Intermolecular attractions
- D. All of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

16. In how many forms do matter exists?

- A. Three
- B. Four
- C. Five
- D. Two

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

17. What is the simplest form of matter?

- A. Gas
- B. Liquid
- C. Solid
- D. Semi solid

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

18. What is the abundant form of matter on earth?

- A. Gas                                      B. Liquid  
C. Solid                                      D. Plasma

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

19. Which state of matter has the lowest density?

- A. Gas                                      B. Liquid  
C. Solid                                      D. Plasma

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

20. What do we call to sudden expansion of plasma?

- A. Avogadros law                              B. Grahams law of diffusion  
C. Joule Thompson effect                      D. Daltons law of partial pressure

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

21. The solid particles only posses

- A. Translational motion                      B. Vibrational motion  
C. Rotational motion                         D. All of above motions

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

22. For a gas where volume and pressures are  $1\text{dm}^3$  and 2 atm respectively what should be its new volume when pressure is increased to 6 atm at constant temperature?

- A.  $1/2\text{dm}^3$                                       B.  $1/3\text{dm}^3$   
C.  $1/4\text{dm}^3$                                       D.  $2/3\text{dm}^3$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

23. If  $1/V$  is plotted on X-axis and pressure on Y-axis at constant temperature what should appear

- A. Straight line parallel to x-axis        B. Straight line parallel to y-axis  
C. Straight line                                D. Curve

**Answer & Explanation**



### Answer & Explanation

**Answer:** Option B

**Explanation:**

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---

27. Which one is not the partial pressure of oxygen in the lungs?

- |               |                 |
|---------------|-----------------|
| A. 0.1526 atm | B. 116 mm of Hg |
| C. 116 torr   | D. 1 atm        |

### Answer & Explanation

**Answer:** Option D

**Explanation:**

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---

28. The spreading of fragrance or scent in air is due to

- |                        |                |
|------------------------|----------------|
| A. Diffusion           | B. Effusion    |
| C. Attraction with air | D. Low density |

### Answer & Explanation

**Answer:** Option A

**Explanation:**

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---

29. The kinetic molecular theory of gases was put forward in 1738 by

- |             |            |
|-------------|------------|
| A. Boltzman | B. Maxwell |
|-------------|------------|

C. Clausius

D. Bernoulli

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

30. The highest temperature at which a substance can exist as a liquid is called its

A. Critical temperature

B. Standard temperature

C. Absolute temperature

D. Upper consulate temperature

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

31. Hydrogen effuses four times more rapidly than volume of an unknown gas molar mass of unknown gas should be

A. 16 gmol<sup>-1</sup>

B. 32 gmol<sup>-1</sup>

C. 48 gmol<sup>-1</sup>

D. 64 gmol<sup>-1</sup>

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

32. What will be the pressure of 1 mole of an ideal gas maintained at 300 K and 250cm<sup>3</sup> volume?

A. 98.5 atm

B. 96.7 atm

C. 95.8 atm

D. 97.1 atm

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

33. The processes of effusion and diffusion are best understood by

A. Daltons law

B. Avogadro's law

C. Graham's law

D. Charles law

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

34. Who made volume and pressure correction to explain deviation of gases from ideal behaviour?

A. Clausius

B. Boltzmann

C. Charles

D. Van der Waals

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

35. The non-ideal behaviour results chiefly from

- |   |  |
|---|--|
| <b>A.</b> Intermolecular attraction and infinite volume | <b>B.</b> Elastic collisions and finite volume |
| <b>C.</b> Intermolecular attractions and finite volume  | <b>D.</b> Intermolecular attraction only       |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

36. The gases become non-ideal at

- |  |   |
|--|---|
| <b>A.</b> High temperature and high pressure | <b>B.</b> Low temperature and low pressure  |
| <b>C.</b> High temperature and low pressure  | <b>D.</b> Low temperature and high pressure |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

37. Linds method is employed for

- |                                |                                 |
|--------------------------------|---------------------------------|
| <b>A.</b> Separation of gases  | <b>B.</b> Expansion of gases    |
| <b>C.</b> Compression of gases | <b>D.</b> Liquefaction of gases |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

1. The relative attraction of the nucleus for the electrons in a chemical bond is called
- A. Ionization energy                      B. Electron affinity
- C. Electro negativity                      D. None of the above

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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- 
2. The ionization energy
- A. Generally increases from left to right in a period                      B. Does not change in a period
- C. Increase from top to bottom in a group                      D. Does not change in a group

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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- 
3. Which of the following will have highest value of electron affinity
- A. F    B. Cl

C. Br

D. I

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

4. Which type of bond is formed by overlap of p orbitals

A. Pi (?)

B. Sigma(?)

C. Both

D. Neither

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

5. The octet rule does not always hold for which of the following elements

A. C

B. O

C. F

D. P

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

6. Which of the solid does not contain covalent bond

A. Copper

B. Ice

C. Diamond

D. Graphite

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

7. Which of the following is the best explanation that CO<sub>2</sub> is non polar molecule

A. Linear geometry

B. Dipole moment is zero

C. Sp hybridization

D. None

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

8. Shielding effect across the period

A. Increases

B. Decreases

C. Constant

D. None

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

9. Which one is not the absolute term of the element?

- A. Ionization energy                      B. Electron affinity  
C. Electro negativity                      D. Atomic size

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

10. Which one has maximum number of unpaired electrons?

- A. 6X    B. 7Y  
C. 9Z    D. 13W

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

11. The molecule having  $\pi$ -bond

- A. H<sub>2</sub>O    B. C<sub>2</sub>H<sub>6</sub>  
C. O<sub>2</sub>    D. NH<sub>3</sub>

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

12. When 2 lone pair and 2 bond pair are around the central atom reduction in the

bond angle is up to.

- |                  |                  |
|------------------|------------------|
| <b>A.</b> 109.5? | <b>B.</b> 104.5? |
| <b>C.</b> 107.5? | <b>D.</b> 102?   |

**Answer & Explanation**

**Answer:** Option **B**

**Explanation:**

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---

13. In O<sub>2</sub> each oxygen atom is hybridized

- |                           |                           |
|---------------------------|---------------------------|
| <b>A.</b> sp <sup>3</sup> | <b>B.</b> sp <sup>2</sup> |
| <b>C.</b> sp              | <b>D.</b> All             |

**Answer & Explanation**

**Answer:** Option **B**

**Explanation:**

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---

14. Molecular orbitals are filled according to

- |                                      |                      |
|--------------------------------------|----------------------|
| <b>A.</b> Auf bau principle          | <b>B.</b> Hunds rule |
| <b>C.</b> Paulis Exclusion principle | <b>D.</b> All these  |

**Answer & Explanation**

**Answer:** Option **D**

**Explanation:**

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---

15. Measurement of the degree of polarity is

- A. Electron affinity                      B. Ionic character  
C. Ionization energy                      D. Dipole moment

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

16. Which one shows high %age of the ionic character?

- A. H<sub>2</sub>O                                      B. HF  
C. HCl                                      D. HBr

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

17. A specie with maximum number of unpaired electrons.

- A. F                                      B. H<sub>2</sub>O  
C. HF                                      D. NH<sub>2</sub>

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

18. Which of the following have their outer most shell complete in atomic form?

- A. Noble gases
- B. Alkali metals
- C. Coinage metals
- D. Gun metals

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

19. Force responsible to hold atoms together in a compound is called

- A. Bond
- B. Attractive force
- C. Interaction
- D. All of above represent same entity

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

20. Energy of atom in compound is

- A. Higher than individual
- B. Lesser than individual
- C. No change
- D. Impossible to predict

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

21. In a period the atomic radii

- A. Increases
- B. Decreases
- C. Remain same
- D. First decreases then increases

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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22. An atom loses or gains electrons to

- A. Gain stability
- B. Form a bond
- C. Complete its outermost shell
- D. all are accurate justifications

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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23. In a group ionic radii

- A. Increases
- B. Decreases
- C. No change
- D. Variable trend

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

24. Energy required to remove electron from an atom

- |                         |                      |
|-------------------------|----------------------|
| A. Ionization potential | B. Electronegativity |
| C. Electron affinity    | D. Activation energy |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

25. Ionization energy in a period generally

- |              |                   |
|--------------|-------------------|
| A. Increases | B. Decreases      |
| C. No change | D. Variable trend |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

26. Greater shielding effect corresponds to ionization energy value

- |                |              |
|----------------|--------------|
| A. Greater     | B. Lesser    |
| C. Remain same | D. No effect |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

27. Elements having high I.P values are

- |                   |                      |
|-------------------|----------------------|
| <b>A.</b> Metals  | <b>B.</b> Non metals |
| <b>C.</b> Liquids | <b>D.</b> Solids     |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

28. Energy released or absorbed when electrons are added in atom is

- |                                |                             |
|--------------------------------|-----------------------------|
| <b>A.</b> Ionization potential | <b>B.</b> Electronegativity |
| <b>C.</b> Electron affinity    | <b>D.</b> Activation energy |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

29. In a period electronegativity from left to right

- |                           |                          |
|---------------------------|--------------------------|
| <b>A.</b> Increases       | <b>B.</b> Decreases      |
| <b>C.</b> Remain constant | <b>D.</b> Variable trend |

### **Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

30. Ionic bond is produced after complete transfer of

- |                     |                    |
|---------------------|--------------------|
| <b>A.</b> Nucleus   | <b>B.</b> Neutrons |
| <b>C.</b> Electrons | <b>D.</b> Protons  |

### **Answer & Explanation**

**Answer:** Option C

**Explanation:**

31. Elements of group IA IIA are

- |                           |  |
|---------------------------|--|
| <b>A.</b> Electronegative | <b>B.</b> Electropositive                                    |
| <b>C.</b> Neutral         | <b>D.</b> IA is electropositive while IIA is electronegative |

### **Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

32. Bond will be ionic when E.N difference of bonded atom is

- |                         |                                 |
|-------------------------|---------------------------------|
| <b>A.</b> Equal to 1.7  | <b>B.</b> Greater than 1.7      |
| <b>C.</b> Less than 1.7 | <b>D.</b> No specificity exists |

### **Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

33. Mostly ionic compound are produced between elements of

- |                       |                           |
|-----------------------|---------------------------|
| <b>A.</b> IA and VIA  | <b>B.</b> IA IIA and VIIA |
| <b>C.</b> IB and VIIB | <b>D.</b> IA and IB       |

### **Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

34. Which one of the following has polar covalent bond?

- |                          |                           |
|--------------------------|---------------------------|
| <b>A.</b> HF             | <b>B.</b> CH <sub>4</sub> |
| <b>C.</b> H <sub>2</sub> | <b>D.</b> N <sub>2</sub>  |

### **Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

35. The Lewis acids are

- |                              |                         |
|------------------------------|-------------------------|
| <b>A.</b> Electron deficient | <b>B.</b> Electron rich |
|------------------------------|-------------------------|

C. Octet is complete

D. No such acids exist

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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36. Sharing of 1 electron pair by one specie forms

A. Single covalent bond

B. Hydrogen bond

C. Double covalent bond

D. Coordinate covalent bond

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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37. Angle in water molecule is

A. 104.9°

B. 104.5°

C. 109.5°

D. 120°

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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38. The geometry of ammonia is

- A. Tetrahedral  
B. Square planar  
C. Trigonal bipyramidal  
D. Trigonal Pyramidal

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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39. Orbitals of same energy produced after mixing of orbitals of different energy are called

- A. Degenerate orbitals  
B. Generate orbitals  
C. Hybrid orbitals  
D. Zeeman orbitals

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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40. By combining n atomic orbitals no. of hybrid orbitals will be

- A.  $2n$   
B.  $n$   
C.  $3n$   
D. impossible to predict

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

41. on  $sp^3$  hybridization

- A. All p-orbitals are involved      B. One s and 3 p-orbitals are involved
- C. one p-orbital is involved      D. four p-orbitals are involved

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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42. Geometry of simple molecule having  $sp^3$  hybrid orbital is

- A. Triangular      B. Tetrahedral
- C. Square planner      D. Linear

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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43. Geometry of molecule will be pyramidal if the outer post shell of the central atom has

- A. 3 bond pair one lone pair      B. 2 bond pair 2 lone pair
- C. 1 bond pair 3 lone pair      D. 3 lone pair 1 bond pair

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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44. Pi bonds are produced by overlapping of

- |   |   |
|---|---|
| <b>A.</b> Un-hybrid orbitals            | <b>B.</b> Hybrid orbitals                   |
| <b>C.</b> Hybrid and un hybrid orbitals | <b>D.</b> atomic orbital and hybrid orbital |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

45. According to VESPR Model the geometry of molecule having 5 bond pair in outer most shell will be

- |                                |                          |
|--------------------------------|--------------------------|
| <b>A.</b> Triangular           | <b>B.</b> Square planner |
| <b>C.</b> Trigonal bipyramidal | <b>D.</b> Octahedral     |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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46. Molecular orbital which have higher energy than atomic orbitals is called

- |                                     |   |
|-------------------------------------|---|
| <b>A.</b> Bonding molecular orbital | <b>B.</b> Antibonding molecular orbital |
| <b>C.</b> Hybrid orbital            | <b>D.</b> Super atomic orbital          |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

47. Unpaired electron in a molecule gives \_\_\_\_\_ character.

- |                         |                        |
|-------------------------|------------------------|
| <b>A.</b> Ferromagnetic | <b>B.</b> Paramagnetic |
| <b>C.</b> Diamagnetism  | <b>D.</b> Both a & b   |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

48. Bond order for N<sub>2</sub> molecule is

- |             |             |
|-------------|-------------|
| <b>A.</b> 2 | <b>B.</b> 1 |
| <b>C.</b> 3 | <b>D.</b> 4 |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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49. Product of charge and distance is called

- |                    |                         |
|--------------------|-------------------------|
| <b>A.</b> Pressure | <b>B.</b> Bond length   |
| <b>C.</b> Work     | <b>D.</b> Dipole moment |

### Answer & Explanation

**Answer:** Option D

**Explanation:**

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---

50. Unit of dipole moment is

- |           |           |
|-----------|-----------|
| A. Debye  | B. Poise  |
| C. Pascal | D. Newton |

### Answer & Explanation

**Answer:** Option A

**Explanation:**

1. Which of the following solutions of  $\text{H}_2\text{SO}_4$  is more concentrated?

- |                      |                                |
|----------------------|--------------------------------|
| A. 1 Molar solution  | B. 1 molal solution            |
| C. 1 normal solution | D. all have same concentration |

### Answer & Explanation

**Answer:** Option A

**Explanation:**

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---

2. Which of the following unit of concentration is independent of temperature?

- |                  |             |
|------------------|-------------|
| A. Molarity      | B. Molality |
| C. Mole fraction | D. all      |

### Answer & Explanation

**Answer:** Option B

**Explanation:**

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---

3. Which of the following is an example of liquid in gas solution.
- |           |                            |
|-----------|----------------------------|
| A. Opals  | B. Dust particles in smoke |
| C. Paints | D. Fog                     |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

4. The molal boiling point constant is the ration of the elevation of boiling point to
- |                             |                            |
|-----------------------------|----------------------------|
| A. Molarity                 | B. Molality                |
| C. More fraction of solvent | D. Mole fraction of solute |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

5. Which of the following are the conditions of colligative properties
- |                           |                        |
|---------------------------|------------------------|
| A. Non-electrolyte solute | B. Non-volatile solute |
|---------------------------|------------------------|

C. Dilute solution

D. All of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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6. Which has the minimum freezing point?

A. One Molal NaCl

B. One molal KCl solution

C. One molal CaCl<sub>2</sub>

D. One molal urea solution

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

7. Which of the following is not a colligative property?

A. Lowering of vapour pressure

B. Freezing point

C. Osmotic pressure

D. Elevation of boiling point

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

8. Which of the following substance do not show continuous solubility curve?

A.  $\text{KClO}_4$

B.  $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$

C.  $\text{K}_2\text{Cr}_2\text{O}_7$

D.  $\text{PbCl}_2$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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9. When common salt is dissolved in water?

A. Boiling point of water decrease

B. Boiling point of water increase

C. Boiling point of water remains same

D. None of the above

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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10. Every sample of matter with uniform properties and fixed composition is called

A. solute

B. solvent

C. solution

D. phase

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

11. Homogeneous mixture of two or more than two compounds is called

- A. solution
- B. compound
- C. radical
- D. ion

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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12. The component of solution which is in smaller amount is called

- A. solvent
- B. solute
- C. phase
- D. ion

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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13. Solution with maximum concentration of solute at given temperature is called

- A. Super saturated solution
- B. unsaturated solution
- C. saturated solution
- D. dilute solution

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

14. 10ml of alcohol dissolve in 90ml of water unit of concentration used is

A. % w/w

B. % w/v

C. % v/v

D. % v/w

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

15. Number of moles in 1 kg of solvent is called

A. normality

B. molarity

C. molality

D. mole fraction

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

16. 58.5g of NaCl per 1 dm<sup>3</sup> of solution of NaCl in water the concentration of solution will be

A. 0.1 M

B. 1 m

C. 1 M

D. 0.1 N

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

17. In partially miscible liquids the two layers are

- |  |  |
|--|--|
| <b>A.</b> saturated solutions of each liquid | <b>B.</b> unsaturated solutions of each liquid |
| <b>C.</b> normal solution of each liquid     | <b>D.</b> no layer formation takes place       |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

18. If the volume of solution is equal to sum of volumes of its all components then the solution

- |  |                                      |
|--|--------------------------------------|
| <b>A.</b> will be an ideal solution              | <b>B.</b> will be non-ideal solution |
| <b>C.</b> will show deviations from Raoult's law | <b>D.</b> both b & c                 |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

19. The relative lowering of vapour pressure is

- |  |  |
|--|--|
| <b>A.</b> equal to the mole fraction of solvent                | <b>B.</b> equal to the mole fraction of solute |
| <b>C.</b> directly proportional to the mole fraction of solute | <b>D.</b> both b & c                           |

### **Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

20. The solution which distils over with change in composition

- |                        |                       |
|------------------------|-----------------------|
| A. ideal solution      | B. zeotropic solution |
| C. azeotropic solution | D. non-ideal solution |

### **Answer & Explanation**

**Answer:** Option B

**Explanation:**

21. Mixtures which distill over without change in composition called

- |                       |                       |
|-----------------------|-----------------------|
| A. zeotropic mixture  | B. azeotropic mixture |
| C. amphoteric mixture | D. ideal solution     |

### **Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

22. Concentration of solute molecule when they are in equilibrium with solid substance at particular temperature is called

- |                         |                             |
|-------------------------|-----------------------------|
| A. saturated solution   | B. solubility               |
| C. unsaturated solution | D. super saturated solution |

### Answer & Explanation

**Answer:** Option B

**Explanation:**

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---

23. Solubility of  $\text{KClO}_3$  gives

- |   |  |
|---|--|
| <b>A.</b> continuous and falling solubility curve | <b>B.</b> discontinuous and falling solubility curve |
| <b>C.</b> continuous and rising solubility curve  | <b>D.</b> discontinuous and rising solubility curve  |

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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---

24. The determination of correct molecular weight from Raoult's law is applicable to

- |  |  |
|--|--|
| <b>A.</b> a volatile solute in dilute solution                             | <b>B.</b> a non-electrolyte & non volatile solute in concentrated solution |
| <b>C.</b> a non-electrolyte & non volatile solute in concentrated solution | <b>D.</b> non volatile solute in a dilute solution                         |

### Answer & Explanation

**Answer:** Option D

**Explanation:**

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---

25. Boiling point elevations can be measured by

- A. Beckmanns method                      B. Landsbergers method  
C. Linds method                              D. none of the above

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

26. Beckmanns apparatus is used to measure

- A. boiling point elevation                      B. depression in freezing point  
C. lowering of vapour pressure                      D. lowering of osmotic pressure

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

27. Water molecules surrounds more around

- A. ve ion    B. complex ion  
C. ?ve ion    D. neutral atom

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

28. The compounds in which water molecules are added are called

- |                         |                        |
|-------------------------|------------------------|
| <b>A.</b> Hydrated ions | <b>B.</b> double salts |
| <b>C.</b> hydrates      | <b>D.</b> complexes    |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

29. Hydration is a process in which

- |   |   |
|---|---|
| <b>A.</b> Molecules are surrounded by solvent molecules               | <b>B.</b> Ions are surrounded by solvent molecules                  |
| <b>C.</b> Both ions and molecules are surrounded by solvent molecules | <b>D.</b> Both ions and molecules are surrounded by water molecules |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

30. Solution of  $\text{Na}_2\text{SO}_4$  will be

- |                   |                                       |
|-------------------|---------------------------------------|
| <b>A.</b> basic   | <b>B.</b> acidic                      |
| <b>C.</b> neutral | <b>D.</b> cannot be predicted without |

data

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

31. ppm means

- |  |   |
|--|---|
| <b>A.</b> parts of solute in 1000 parts of solvent         | <b>B.</b> parts of solvent in 1000 parts of solute        |
| <b>C.</b> parts of solute in one million parts of solution | <b>D.</b> parts of solvent in one million parts of solute |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

32. 1 molar solution of glucose in water contains weight of glucose

- |                                |                                |
|--------------------------------|--------------------------------|
| <b>A.</b> 180g/dm <sup>3</sup> | <b>B.</b> 170g/dm <sup>3</sup> |
| <b>C.</b> 190g/dm <sup>3</sup> | <b>D.</b> 195g/dm <sup>3</sup> |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

33. Water of crystallization can be removed by



- A.** Number of valence electrons      **B.** Atomic number  
**C.** Atomic mass      **D.** Atomic volume

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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- 
2. An element having low value of ionization energy and low value of electron affinity is likely to belong to
- A.** Group IA      **B.** Group IB  
**C.** Group VIIA      **D.** Group VIII

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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- 
3. Which set of elements is listed in order of increasing ionization energy?
- A.**  $Sb < As < S < P < Cl$       **B.**  $Cl < Sb < P < As < S$   
**C.**  $As < Cl < P < S < Sb$       **D.**  $Sb < As < Cl < S < P$

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

4. Which of the following always increases on going from top to bottom in a group?

A. Metallic character

B. Electronegativity

C. Oxidizing power

D. Tendency to get reduced

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

5. Which of the p-block elements are not representative elements?

A. Alkali metals (I-A)

B. Group-14 elements (IV-A)

C. Group-18 elements (VIII-A)

D. Halogens (VII-A)

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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6. Among halogens the highest boiling point is of

A. Fluorine

B. Chlorine

C. Bromine

D. Iodine

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

7. Which of the following will not form crystalline structure with oppositely charged ions

A.  $H^+$

B.  $H^-$

C.  $Mg^{2+}$

D.  $Ca^{2+}$

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

8. Which statement is incorrect?

A. All the metals are good conductor of electricity.

B. All the metals are good conductor of heat

C. All the metals form positive ions

D. All the metals form acidic oxides

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

9. Periodic table provides a basic framework to study elements with respect to their

A. Physical properties

B. Chemical properties

C. Properties of their compounds

D. All

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

10. The scientist who did not contribute in the construction of periodic table?

- |                      |                      |
|----------------------|----------------------|
| <b>A.</b> Al-Razi    | <b>B.</b> Moseley    |
| <b>C.</b> Dobereiner | <b>D.</b> Democritus |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

11. Concept of Triads was introduced by

- |                      |                   |
|----------------------|-------------------|
| <b>A.</b> Dobereiner | <b>B.</b> Newland |
| <b>C.</b> Mendeleev  | <b>D.</b> Al-Razi |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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12. Which element was not known when Mendeleev proposed his classification?

- |                    |                     |
|--------------------|---------------------|
| <b>A.</b> Hydrogen | <b>B.</b> Sodium    |
| <b>C.</b> Copper   | <b>D.</b> Germanium |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

13. Elements with similar chemical properties appear in the

- |                            |                              |
|----------------------------|------------------------------|
| <b>A.</b> Same family      | <b>B.</b> Same period        |
| <b>C.</b> p block elements | <b>D.</b> Right upper corner |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

14. Noble gases are named so because they are

- |  |                               |
|--|-------------------------------|
| <b>A.</b> less reactive                          | <b>B.</b> Zero group elements |
| <b>C.</b> Having completely filled valence shell | <b>D.</b> All                 |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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15. In modern periodic table all the elements are arranged in ascending order of

- |                   |                       |
|-------------------|-----------------------|
| <b>A.</b> Valency | <b>B.</b> Atomic mass |
|-------------------|-----------------------|

C. Atomic number

D. Valence electrons

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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16. The longest period in the modern periodic table is

A. 6th

B. 7th

C. 2nd and 3rd both

D. 5th

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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17. Inner transition elements are called

A. Lanthanides

B. Actinides

C. Rare earth metals

D. All

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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18. Seventh period contains \_\_\_\_\_ normal elements

A. 2

B. 4

C. 6

D. 8

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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19. Modern periodic table has been divided in \_\_\_\_\_ blocks

A. 2

B. 4

C. 8

D. 7

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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20. Non-metals usually form \_\_\_\_\_ oxides

A. Acidic

B. Amphoteric

C. Neutral

D. All of the above

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

21. Amphoteric oxides are those which possess \_\_\_\_\_ properties

**A.** Acidic

**B.** Basic

**C.** Acidic and basic

**D.** Neutral and acidic

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

22. Best position of hydrogen in the periodic table is above I.A Group which is mainly due to

**A.** Both are electropositive

**B.** Similar outer most shell electronic configuration

**C.** Both form ionic compounds

**D.** All

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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23. Hydrogen resembles with carbon because of having

**A.** Same number of electrons in the valence shell

**B.** Similar physical state

**C.** Remarkable reducing properties

**D.** Homovalent (show same valency)

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

24. Which one of the following sets consists of all coinage metals?

- |             |             |
|-------------|-------------|
| A. Cu Hg Au | B. Cu Ag Au |
| C. Ag Au Hg | D. Cu Fe Au |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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25. In which of the following pairs are elements belonging to the same group?

- |                          |                           |
|--------------------------|---------------------------|
| A. Boron & Beryllium     | B. Nitrogen & Phosphorous |
| C. Magnesium & Aluminium | D. Gallium & Helium       |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

26. Many properties of an element and its compounds can be predicted from the position of the element in the periodic table. What property could not be predicted in this way?

- |                             |                           |
|-----------------------------|---------------------------|
| A. The nature of its oxides | B. The charge on its ions |
| C. The formula of its oxide | D. Its number of isotopes |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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27. Which one of the following is not a periodic property?

- A.** Melting point of elements      **B.** Boiling point of elements  
**C.** Ionization energy of elements      **D.** Coordination number of ions

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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28. The atomic radii decreases by increasing atomic number in

- A.** Alkali metal      **B.** Alkaline earth metal  
**C.** Elements from Li to Ne      **D.** Halogens

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

29. Which discovery caused a revision in the periodic law as stated by Mendeleev?

- A.** Location of nucleus by Rutherford      **B.** Atomic number by Moseley



C. Cl<sup>-</sup>

D. All are stable

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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33. The atoms of same element having same atomic number but different mass number are called

A. Isobars

B. Isomers

C. Isotopes

D. Isotropes

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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34. Deuterium reacts with oxygen to form

A. Hard water

B. Heavy water

C. Soft water

D. Water gas

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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35. Which order of ionization energy is correct

A.  $Mg < Al$

B.  $Si > P$

C.  $Mg > Al$

D. both b & c

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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36. Ionization energy depends upon

A. Nuclear charge

B. Atomic size

C. Shielding effect

D. I.E depends upon all of the above and nature of orbital

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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37. Shielding effect across the period

A. Increases

B. Decreases

C. Can not be predicted

D. Remains constant

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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38. Addition of 2nd electron to a uninegative ion is always

- A.** Exothermic
- B.** Endothermic
- C.** Data is insufficient
- D.** Unpredictable

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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39. Higher value of electron affinity means

- A.** Atom will lose electron easily
- B.** Atom will gain electron easily
- C.** Atom may form di-positive ion
- D.** The reason is unknown

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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40. Metallic characters of alkali metals

- A.** Increase down the group
- B.** Decrease down the group
- C.** No regular trend
- D.** Remain same

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

41. Melting points of VII-A group elements down the group

- A. Increase                                  B. Decrease  
C. Remain constant                          D. No regular trend

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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42. Oxidation state of an atom represents

- A. Number of electrons gained                  B. Number of electrons lost  
C. Apparent charge in compound                  D. Its vacancies

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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43. Which of the following possesses maximum hydration energy?

- A. Na<sup>+</sup>    B. K<sup>+</sup>  
C. Mg<sup>+2</sup>    D. Ca<sup>+2</sup>

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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44. Halides in which halogen atoms act as a bridge between two atoms of the other element are called

- |                      |                            |
|----------------------|----------------------------|
| A. Covalent halides  | B. Electronegative halides |
| C. Polymeric halides | D. Polymeric hydrides      |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

45. Less electronegative elements such as Be Ga A? etc form

- |                     |                    |
|---------------------|--------------------|
| A. Polymeric halide | B. Covalent halide |
| C. Ionic halide     | D. All             |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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46. Iodine is solid due to

- |                         |                                 |
|-------------------------|---------------------------------|
| A. Strong covalent bond | B. Large value of dipole moment |
| C. High polarizability  | D. Strong hydrogen bonding      |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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47. True increasing order of acidity of the oxides of Mn is

- A.  $\text{MnO} < \text{MnO}_2 < \text{Mn}_2\text{O}_7$       B.  $\text{Mn}_2\text{O}_7 > \text{MnO}_2 > \text{MnO}$   
C.  $\text{MnO}_2 > \text{MnO} > \text{Mn}_2\text{O}_7$       D.  $\text{MnO}_2 > \text{Mn}_2\text{O}_7 > \text{MnO}$

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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48. Keeping in view the size of atom which order is correct one?

- A.  $\text{Mg} > \text{Sr}$       B.  $\text{Ba} > \text{Mg}$   
C.  $\text{Lu} > \text{Ce}$       D.  $\text{Cl} > \text{I}$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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49. Which one of the following element has highest oxidation state in its compounds?

- A. Cr      B. Mn

C. Sn

D. O

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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50. Which of the following cannot exist in solution

A. O<sup>2-</sup>

B. H<sup>+</sup>

C. Cl<sup>-</sup>

D. Na<sup>+</sup>

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

1. Which of the following is different with respect to physical appearance?

A. Arsenic

B. Phosphorus

C. Antimony

D. Bismuth

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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2. Which one of the followings possesses melting point below 0°C?

A. Nitrogen

B. Phosphorus

C. Carbon

D. Bismuth

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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3. Compounds of nitrogen and phosphorus are mostly

A. ionic

B. covalent

C. polar

D. all varieties are possible

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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4. The most electronegative element among the following is

A. Sb

B. N

C. As

D. P

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

5. SO<sub>3</sub> is not absorbed in water directly because

- A. Reaction is exothermic                      B. It is insoluble in water  
C. Dilute acid is produced                      D. All of above

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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6. Phosphene gas will be produced if phosphorous acid is subjected to  
A. Oxidation    B. Reduction  
C. Decomposition                                      D. Both b & c

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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7. Which of the following will give phosphoric acid one reaction with water  
A.  $\text{PCl}_5$     B.  $\text{P}_2\text{O}_3$   
C.  $\text{P}_2\text{O}_5$     D. All of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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8. Which one of following is not a property of pure quartz?

- A. Coloured solid
- B. Brittle
- C. Hard
- D. All of above

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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9. Phosphorus is a Greek word and it means

- A. Light bearing
- B. Fire
- C. Impure
- D. Tetrahedral

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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10. Which of the following does not contain phosphorus?

- A. Yolk of egg
- B. Bone
- C. Nerves
- D. Steel

**Answer & Explanation**

**Answer:** Option D

**Explanation**

11. Allotropic form of phosphorus that is poisonous is

A. White

B. Red

C. Black

D. Violet

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

12. Which one of the following is not the use of graphite?

A. Lead pencils

B. Abrasive

C. Lubricant

D. Electrode of electrolytic cell

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

13. Acetic anhydride can be obtained by treating ethyl alcohol with

A.  $P_2O_5$

B.  $H_2SO_4$

C. Both a and b

D.  $PCl_5$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

14. The composition of brown ring in nitrate test is

- A.**  $\text{FeSO}_4 \cdot \text{No}$
- B.**  $\text{FeSO}_4 \cdot \text{No}_2$
- C.**  $\text{FeSO}_4 \cdot \text{No}_3$
- D.**  $\text{FeSO}_4 \cdot \text{N}_2\text{o}$

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

15. Phosphorous acid upon thermal decomposition yields phosphoric acid and

- A.** Phosphine
- B.** Phosphorus
- C.** Water
- D.** Phosphorus pentoxide

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

16. Which one of the following compounds usually smells like garlic?

- A.**  $\text{P}_2\text{O}_3$
- B.**  $\text{P}_2\text{O}_5$
- C.**  $\text{H}_3\text{PO}_3$
- D.** All have same smell

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

17. P<sub>2</sub>O<sub>5</sub> is a hygroscopic powder which sublimates at

A. 260°C

B. 360°C

C. 630°C

D. 620°C

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

18. The element of group VIA which is a non-metal is

A. S

B. Se

C. Te

D. Po

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---

19. Phosphoric acid is a weak acid and its basicity is

A. 1

B. 3

C. zero

D. 2

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

20. All the elements in group VIA are \_\_\_\_\_ in nature.

A. hygroscopic

B. metals

C. polymeric

D. all of above

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

21. Which of the elements show passivity when treated with conc.  $\text{HNO}_3$ .

A. Fe

B. A?

C. Cr

D. All of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

22. Which allotropic form of phosphorous is the most stable?

A. White

B. black

C. red

D. Violet

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

23. The gas which cannot be dried by conc.  $\text{H}_2\text{SO}_4$

A.  $\text{SO}_2$

B.  $\text{H}_2\text{S}$

C.  $\text{CO}_2$

D.  $\text{C}_2\text{H}_4$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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24. The chemical composition of cinnabar is

A.  $\text{ZnS}$

B.  $\text{PbS}$

C.  $\text{HgS}$

D.  $\text{FeS}$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

25.  $\text{FeSO}_4$  forms brown ring with

A.  $\text{N}_2\text{O}_3$

B.  $\text{NO}_2$

C.  $\text{NO}$

D.  $\text{N}_2\text{O}$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

26. Oxygen and sulphur resemble in all except

- A. Electronic configuration of valence shell electrons      B. Show allotropy
- C. Polymeric      D. Show same oxidation state

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

27. Oxygen does not react with all except

- A. Alkali      B. Acid
- C. Water      D. Metals

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

28. Arsenic oxides are removed by passing through

- A. Ferric hydroxide      B. Sodium hydroxide
- C. Calcium hydroxide      D. Aluminium hydroxide

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

29. In which compound nitrogen has maximum oxidation state

A.  $\text{N}_2\text{O}$

B.  $\text{NO}_2$

C.  $\text{HNO}_2$

D.  $\text{HNO}_3$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

30. When sulphuric acid is treated with ethanol sulphuric acid behaves like

A. an acid

B. a dehydrating agent

C. an oxidizing agent

D. as sulphonating agent

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

1. Main source of organic compounds is

A. Animal

B. Fossil

C. Coal

D. Plants

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

2. Octane number can be improved by

A. Isomerization

B. Adding (C<sub>2</sub>H<sub>5</sub>)<sub>4</sub> Pb

C. Adding (CH<sub>3</sub>)<sub>4</sub> Pb

D. All

### Answer & Explanation

**Answer:** Option D

**Explanation:**

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---

3. Hydro carbons which burn with smoky flame are called

A. Aliphatic

B. Alicyclic

C. Aromatic

D. Aldehyde

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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---

4. Octane number 2,2,4-trimethyl pentane is

A. 100

B. 90

C. 80

D. 70

### Answer & Explanation

**Answer:** Option A

**Explanation:**

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---

5. Propene can exhibit

- A. cis-trans isomerism                      B. geometric isomerism  
C. both a & b                                      D. none of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

6. Geometric isomerism is usually found in

- A. Alkanes    B. Alkenes  
C. Alkynes    D. Esters

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

7. Pentane and 2-methyl butane have the same

- A. Boiling point                                      B. Melting point  
C. Percentage composition                      D. Structural formula

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

8. Organic compounds that are essentially nonpolar and exhibit weak intermolecular forces have
- A. Low melting points                      B. Low vapour pressure
- C. High boiling points                      D. High electrical conductivity

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

9. The first organic compound was synthesized in laboratory by
- A. Wohler                                      B. Kolbe
- C. Berzilius                                      D. Berthelot

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

10. According to vital force theory
- A. Organic compounds can be synthesized from inorganic compounds                      B. organic compounds cannot be synthesized from inorganic compounds
- C. organic compounds can be synthesized by animals                      D. organic compounds can be synthesized by plants

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

11. First organic compound synthesized in laboratory was

- |                  |                  |
|------------------|------------------|
| A. tartaric acid | B. ethyl alcohol |
| C. methanol      | D. urea          |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

12. A double bond consists of

- |                               |                               |
|-------------------------------|-------------------------------|
| A. Two sigma bonds            | B. Two Pi bonds               |
| C. One sigma and one Pi bonds | D. One sigma and two Pi bonds |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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13. The property of carbon chain formation is called

- |                   |                  |
|-------------------|------------------|
| A. catenation     | B. hybridization |
| C. polymerization | D. solvation     |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

14. Chemical properties of first member of homologous series with respect to other members are

A. same

B. different

C. depends upon number of C atoms

D. depends upon number of H atoms

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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15. The organic compounds having very high molecular weight are called

A. carboxylic acids

B. ketones

C. aldehydes

D. polymers

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

16. Compounds having same molecular formula but differ in structural formula are called

A. polymer

B. monomer

C. isomer

D. allotropes

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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17. Rate of reactions of most organic compounds are

A. very slow

B. very fast

C. slow

D. no regular character present

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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18. Organic compounds are soluble in

A. polar solvent

B. non-polar solvent

C. alkalies

D. water

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

19. Coal is produced after a long time decay of

- A. animals
- B. fossils
- C. wood
- D. all of the above

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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20. Methane is used in power generation in chemical industries being a

- A. natural gas
- B. good caloric value
- C. cheaper
- D. All

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

21. Crude oil is blackish coloured liquid produced after the decay of organic matter present between

- A. earth layer
- B. mountains
- C. sedimentary rocks
- D. rocks

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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22. The process in which larger molecule with higher molecular weight breaks down into smaller molecules with lower molecular weight

A. polymerization

B. pyrolysis

C. isomerism

D. no such process occurs

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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23. At low temperature and pressure cracking can be done in presence of catalyst

A.  $Al_2O_3$

B.  $Fe_2O_3$

C.  $Al_2O_3$  and  $SiO_2$

D.  $Fe_2O_3$  and  $SiO_2$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

24. The metallic sound produced by engine due to the pre-ignition of fuel is called

A. knocking

B. reforming

C. cracking

D. a and c

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

25. Which one of the following compounds shows intense knocking?

- A. n-pentane    B. iso-heptane  
C. iso-octane                                         D. n-heptane

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

26. Which of the following can be used as anti-knocking agent.

- A.  $\text{PbCl}_2$     B.  $(\text{C}_2\text{H}_5)_4\text{Pb}$   
C.  $(\text{C}_2\text{H}_5)_2\text{Pb}$                                     D. all of the above

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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27. Ether functional group can be represented as

- A.  $-\text{OH}$     B.  $\text{R-CO-R}$   
C.  $\text{R-O-R}$                                          D.  $\text{R-COOH}$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

28. Isomerism which is present only in alkene is

- |                         |                 |
|-------------------------|-----------------|
| A. structural isomerism | B. metamerism   |
| C. cis-trans isomerism  | D. both b and c |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

29. A single atom or group of atoms which gives characteristic properties to a compound is called

- |                     |                |
|---------------------|----------------|
| A. radical          | B. hydrocarbon |
| C. functional group | D. ion         |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

30. Compound containing benzene ring in their structure are

- |                    |                  |
|--------------------|------------------|
| A. aliphatic       | B. aromatic      |
| C. carboxylic acid | D. carbohydrates |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

31. 2-propanol and 1-propanol show the isomerism

- |                               |                                      |
|-------------------------------|--------------------------------------|
| <b>A.</b> metamerism          | <b>B.</b> functional group isomerism |
| <b>C.</b> geometric isomerism | <b>D.</b> position isomerism         |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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32. Which of the following is an amide

- |                             |   |
|-----------------------------|---|
| <b>A.</b> R-NH <sub>2</sub> | <b>B.</b> RCONH <sub>2</sub>                            |
| <b>C.</b> R - NH - R        | <b>D.</b> C <sub>6</sub> H <sub>5</sub> NH <sub>2</sub> |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

33. In sp<sup>3</sup> hybridization the expected geometry of molecules will be

- |                         |                              |
|-------------------------|------------------------------|
| <b>A.</b> square planar | <b>B.</b> trigonal pyramidal |
| <b>C.</b> tetrahedral   | <b>D.</b> linear             |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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34. Only sigma bonds are present in

- |                   |                         |
|-------------------|-------------------------|
| <b>A.</b> propene | <b>B.</b> butanoic acid |
| <b>C.</b> butanal | <b>D.</b> ethoxy ethane |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

35. In cyano group the carbon atom shows which kind of hybridization

- |                  |                             |
|------------------|-----------------------------|
| <b>A.</b> $sp^2$ | <b>B.</b> $sp$              |
| <b>C.</b> $sp^3$ | <b>D.</b> none of the above |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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36. The structure of ethyne is

- |                   |                           |
|-------------------|---------------------------|
| <b>A.</b> angular | <b>B.</b> trigonal        |
| <b>C.</b> linear  | <b>D.</b> trigonal planar |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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37. the fractional distillation of petroleum produces gasoline up to

A. 10%

B. 15%

C. 20%

D. 30%

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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38. The general formula of cycloalkene is

A.  $C_nH_{2n}$

B.  $C_nH_{2n+2}$

C.  $C_nH_{2n-1}$

D.  $C_nH_{2n-2}$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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39. Which is not heterocyclic compound

A. Furan

B. Thiophene

C. Aniline

D. Pyridine

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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40. C<sub>5</sub>H<sub>12</sub> has the number of isomers

A. one

B. two

C. three

D. four

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

1. What will be the products when reactants are alcohol & thionyl chloride in the presence of pyridine?

A.  $RC\text{Cl} + S + HC\text{Cl}$

B.  $RC\text{Cl} + SO_2 + HC\text{Cl}$

C.  $RC\text{Cl} + SO_2 + H_2O$

D.  $RC\text{Cl} + S + H_2O$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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2. Which C-X bond has the highest bond energy per mole?

A. C-F

B. C-C

C. C-Br

D. C-I

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

3. Which alkyl halide has the highest reactivity for a particular alkyl group?

A. R-F

B. R-C?

C. R-Br

D. R-I

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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4. Ethyl chloride with nascent hydrogen produces

A. methane

B. ethane

C. propane

D. butane

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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5. Which one is not a nucleophile?

A.  $\text{C}_2\text{H}_5\text{O}^-$

B.  $\text{SCN}^-$

C.  $\text{NH}_3$

D.  $\text{H}_3\text{C}^+$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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6. The number of molecules taking part in the rate determining step is called

A. Order of reaction

B. Rate of reaction

C. Mole of a reaction

D. Extent of a reaction

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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7. During  $\text{S}_\text{N}2$  mechanism carbon atom changes its state of hybridization as

A.  $\text{sp}^2 \rightarrow \text{sp}^3$

B.  $\text{sp}^2 \rightarrow \text{sp}$

C.  $\text{sp}^3 \rightarrow \text{sp}$

D.  $\text{sp}^3 \rightarrow \text{sp}^2$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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8. What will be the order of reaction of a reaction whose rate can be expressed as  $R = K [A] [B]$ ?

A. Zero

B. One

C. Two

D. Three

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

9. Which one among the following is not a good leaving group?

A.  $\text{HSO}_4$

B.  $\text{C}^-$

C.  $\text{OH}^-$

D.  $\text{Br}^-$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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10. What is the order of kinetics in the  $\text{SN}_1$  mechanism?

A. Zero

B. First

C. Second

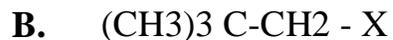
D. Third

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

11. Which alkyl halide out of the following may follow both SN1 and SN2 mechanism?



**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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12. In elimination reactions of alkyl halide which site is more susceptible for the attack of base

A.  $\beta$  - carbon

B.  $\alpha$  - carbon

C.  $\beta$  - hydrogen

D.  $\alpha$  - hydrogen

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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13. When two moles of ethyl chloride react with two moles of sodium in the presence of ether what will be formed?

A. 2 moles of ethane

B. 1 mole of ethane

C. 2 moles of butane

D. 1 mole of butane

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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14. The ether used in Wurtz synthesis is

- |            |          |
|------------|----------|
| A. acidic  | B. basic |
| C. aqueous | D. dry   |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

15. When CO<sub>2</sub> is made to react with ethyl magnesium iodide followed by acid hydrolysis the product formed is

- |             |                   |
|-------------|-------------------|
| A. propane  | B. propanoic acid |
| C. propanal | D. propanol       |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

16. Grignard reagent is reactive due to

- |                                 |                                   |
|---------------------------------|-----------------------------------|
| A. the presence of halogen atom | B. the presence of magnesium atom |
| C. the polarity of C-Mg bond    | D. all                            |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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17. SN2 reaction can be best carried out with

- |                                 |                                  |
|---------------------------------|----------------------------------|
| <b>A.</b> primary alkyl halide  | <b>B.</b> secondary alkyl halide |
| <b>C.</b> tertiary alkyl halide | <b>D.</b> all                    |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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18. Elimination bimolecular reactions involve

- |                                |                                 |
|--------------------------------|---------------------------------|
| <b>A.</b> first order kinetics | <b>B.</b> second order kinetics |
| <b>C.</b> third order kinetics | <b>D.</b> zero order kinetics   |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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19. For which mechanisms the first step involved is the same?

- |                      |                       |
|----------------------|-----------------------|
| <b>A.</b> E1 + E2    | <b>B.</b> E2 + SN2    |
| <b>C.</b> E1 and SN1 | <b>D.</b> SN1 and SN2 |

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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20. The rate of E1 reaction depends upon

- |   |  |
|---|--|
| <b>A.</b> the concentration of substrate                        | <b>B.</b> the concentration of nucleophile                           |
| <b>C.</b> the concentration of substrate as well as nucleophile | <b>D.</b> base the concentration of substrate as well as nucleophile |

### Answer & Explanation

**Answer:** Option A

**Explanation**

11. Which alkyl halide out of the following may follow both SN1 and SN2 mechanism?

- |  |  |
|--|--|
| <b>A.</b> CH <sub>3</sub> -X                   | <b>B.</b> (CH <sub>3</sub> ) <sub>3</sub> C-CH <sub>2</sub> -X |
| <b>C.</b> (CH <sub>3</sub> ) <sub>2</sub> CH-X | <b>D.</b> (CH <sub>3</sub> ) <sub>3</sub> C-X                  |

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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---

12. In elimination reactions of alkyl halide which site is more susceptible for the attack of base

- |                              |                               |
|------------------------------|-------------------------------|
| <b>A.</b> $\beta$ - carbon   | <b>B.</b> $\alpha$ - carbon   |
| <b>C.</b> $\beta$ - hydrogen | <b>D.</b> $\alpha$ - hydrogen |

### Answer & Explanation

**Answer:** Option D

**Explanation:**

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---

13. When two moles of ethyl chloride react with two moles of sodium in the presence of ether what will be formed?

- |                      |                     |
|----------------------|---------------------|
| A. 2 moles of ethane | B. 1 mole of ethane |
| C. 2 moles of butane | D. 1 mole of butane |

### Answer & Explanation

**Answer:** Option D

**Explanation:**

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---

14. The ether used in Wurtz synthesis is

- |            |          |
|------------|----------|
| A. acidic  | B. basic |
| C. aqueous | D. dry   |

### Answer & Explanation

**Answer:** Option D

**Explanation:**

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---

15. When CO<sub>2</sub> is made to react with ethyl magnesium iodide followed by acid hydrolysis the product formed is



---

18. Elimination bimolecular reactions involve

- A.** first order kinetics                      **B.** second order kinetics  
**C.** third order kinetics                      **D.** zero order kinetics

**Answer & Explanation**

**Answer:** Option **B**

**Explanation:**

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---

19. For which mechanisms the first step involved is the same?

- A.** E1 + E2                                      **B.** E2 + SN2  
**C.** E1 and SN1                                **D.** SN1 and SN2

**Answer & Explanation**

**Answer:** Option **C**

**Explanation:**

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---

20. The rate of E1 reaction depends upon

- A.** the concentration of substrate            **B.** the concentration of nucleophile  
**C.** the concentration of substrate as well as nucleophile    **D.** base the concentration of substrate as well as nucleophile

**Answer & Explanation**

**Answer:** Option A

**Explanation**

21. Alkyl halides are considered to be very reactive compounds towards nucleophile because

- |           |   |           |  |
|-----------|---|-----------|--|
| <b>A.</b> | they have an electrophilic carbon                       | <b>B.</b> | they have an electrophilic carbon & a good leaving group |
| <b>C.</b> | they have an electrophilic carbon & a bad leaving group | <b>D.</b> | they have a nucleophilic carbon & a good leaving group   |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

22. Which one of the following species is not an electrophile?

- |           |                 |           |                 |
|-----------|-----------------|-----------|-----------------|
| <b>A.</b> | NH <sub>3</sub> | <b>B.</b> | Br <sup>+</sup> |
| <b>C.</b> | H <sup>+</sup>  | <b>D.</b> | BF <sub>3</sub> |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

23. Which one of the following reactants will be required to form straight chain alcohol by using Grignard reagent

- A.** formaldehyde                      **B.** ketone  
**C.** ethylene epoxide                 **D.** both a & c

**Answer & Explanation**

**Answer:** Option **D**

**Explanation:**

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---

24. Which one of the following alcohols will be formed when ethyl magnesium bromide reacts with acetone?
- A.** primary alcohol                      **B.** secondary alcohol  
**C.** tertiary alcohol                      **D.** dihydric alcohol

**Answer & Explanation**

**Answer:** Option **C**

**Explanation:**

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---

25. Which one of the following molecules does not form alcohol when reacts with Grignard reagent?
- A.** formaldehyde                      **B.** acetaldehyde  
**C.** propanone                              **D.** carbondioxide

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---

26. In primary alkyl halides the halogen atom is attached to a carbon which is further attached to how many carbon atoms

A. two

B. three

C. one

D. four

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

27. Ethylene epoxide treated with Grignards reagent followed by acid hydrolysis yield

A. primary alcohol

B. secondary alcohol

C. tertiary alcohol

D. dihydric alcohol

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

28. The best method of preparation of alkyl halides is a reaction of alcohol with

A. Zn / HCl

B. SOCl<sub>2</sub> / Pyridine

C. PCl<sub>3</sub>

D. PCl<sub>5</sub>

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

29. Alkyl halides undergo a type of reaction

- A.** Nucleophilic substitution      **B.** Nucleophilic addition  
**C.** Elimination      **D.** both a & c

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

30. 50% inversion of configuration of molecules take place in a

- A.** E1 - reaction      **B.** E2 - reaction  
**C.** SN1 - reaction      **D.** SN2 - reaction

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

1. When - COOH is attached directly to the benzene ring the acid is called

- A.** Aliphatic      **B.** Alicyclic  
**C.** Carboxylic      **D.** Aromatic

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

2. The common name of propane 1 3-dioic is
- |                 |                  |
|-----------------|------------------|
| A. Oxalic acid  | B. Aromatic acid |
| C. Malonic acid | D. Fumaric acid  |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

3. The common thing in phthalic acid and oxalic acid is that both are
- |                 |                 |
|-----------------|-----------------|
| A. Aromatic     | B. Dicarboxylic |
| C. Hydrocarbons | D. Strong acids |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

4. The irritation caused by red ants bite is due to
- |                |                |
|----------------|----------------|
| A. Lactic acid | B. Formic acid |
| C. Uric acid   | D. Acetic acid |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

5. The acid which is used as ink remover is

A. Oxalic acid

B. Succinic acid

C. Adipic acid

D. Acetic acid

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

6. Which of the following is the strongest acid?

A. Water

B. Formic acid

C. Acetic acid

D. Propanoic acid

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

7. Which acid is the manufacture of synthetic rubber?

A. Acetic acid

B. Formic acid

C. Carbonic acid

D. Benzoic acid

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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8. Acidic amino acids have

- |   |   |
|---|---|
| <b>A.</b> 2 amino groups and 1 carboxylic group | <b>B.</b> 1 amino and 1 carboxylic groups |
| <b>C.</b> 2 carboxylic groups and 1 amino group | <b>D.</b> 2 amino and 2 carboxylic groups |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

9. In the formation of Zwitter ions proton goes from

- |                                   |                                   |
|-----------------------------------|-----------------------------------|
| <b>A.</b> Carboxyl to amino group | <b>B.</b> Amino to carboxyl group |
| <b>C.</b> Amino group only        | <b>D.</b> Carboxyl group only     |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

10. The term internal salt refers to

- |  |  |
|--|--|
| <b>A.</b> Acidic character of amino acids  | <b>B.</b> Basic character of amino acids     |
| <b>C.</b> Dipolar character of amino acids | <b>D.</b> Non-polar structure of amino acids |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

11. The organic acid that does not has COOH group is

- |                  |                  |
|------------------|------------------|
| A. phthalic acid | B. carbolic acid |
| C. Maleic acid   | D. Succinic acid |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

12. Which one of the following acids is present in lemon juice?

- |                  |                 |
|------------------|-----------------|
| A. Citric acid   | B. Benzoic acid |
| C. Tartaric acid | D. Oxalic acid  |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

13. The test which is used for the identification of amino-acids is

- |                   |                  |
|-------------------|------------------|
| A. Ninhydrin test | B. Molisch test  |
| C. Biuretic test  | D. Benedict test |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

14. Which one of following amino acid is neither acidic nor a basic in nature?

- |            |                  |
|------------|------------------|
| A. Lysine  | B. Histidine     |
| C. Proline | D. Glutamic acid |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

15. Carboxylic acid reacts with ammonia to form ammonium salts which on heating produces

- |                    |              |
|--------------------|--------------|
| A. CO <sub>2</sub> | B. Alkane    |
| C. Ester           | D. Acidamide |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

16. Glycine is the name of an amino acid because

- |                       |                 |
|-----------------------|-----------------|
| A. Sweet taste        | B. Bitter taste |
| C. Shining appearance | D. Green colour |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

17. The complete reduction carboxylic acid results in the formation of

- |                  |                   |
|------------------|-------------------|
| <b>A.</b> Alkyne | <b>B.</b> Alkene  |
| <b>C.</b> Alkane | <b>D.</b> Alcohol |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

18. The organic acid that can be made from ethanol is

- |                         |                       |
|-------------------------|-----------------------|
| <b>A.</b> Acetic acid   | <b>B.</b> Formic acid |
| <b>C.</b> Butanoic acid | <b>D.</b> Citric acid |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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19. Picric acid is

- |                                    |                             |
|------------------------------------|-----------------------------|
| <b>A.</b> monocarboxylic acid      | <b>B.</b> dicarboxylic acid |
| <b>C.</b> aromatic carboxylic acid | <b>D.</b> none of these     |

### Answer & Explanation

**Answer:** Option D

**Explanation:**

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---

20. The formula of palmitic acid

- |                       |                       |
|-----------------------|-----------------------|
| A. $C_{15}H_{31}COOH$ | B. $C_{13}H_{27}COOH$ |
| C. $C_{17}H_{33}COOH$ | D. $C_{17}H_{35}COOH$ |

### Answer & Explanation

**Answer:** Option A

**Explanation:**

21. Essential amino acids are

- |       |       |
|-------|-------|
| A. 5  | B. 10 |
| C. 15 | D. 20 |

### Answer & Explanation

**Answer:** Option B

**Explanation:**

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---

22. The aliphatic monocarboxylic acids are obtained by the hydrolysis of

- |                     |                      |
|---------------------|----------------------|
| A. proteins and oil | B. fats and proteins |
| C. fats and oils    | D. all above         |

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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---

23. Which of the following is not a fatty acid?

- |                          |                         |
|--------------------------|-------------------------|
| <b>A.</b> Propanoic acid | <b>B.</b> Acetic acid   |
| <b>C.</b> Phthalic acid  | <b>D.</b> Butanoic acid |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

24. An acid with unpleasant smell

- |                          |                        |
|--------------------------|------------------------|
| <b>A.</b> formic acid    | <b>B.</b> acetic acid  |
| <b>C.</b> propionic acid | <b>D.</b> butyric acid |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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25. The basic hydrolysis of ethyl acetate produces

- |                                   |                                      |
|-----------------------------------|--------------------------------------|
| <b>A.</b> ethanol                 | <b>B.</b> acetic acid                |
| <b>C.</b> ethanol and acetic acid | <b>D.</b> ethanol and sodium acetate |

### Answer & Explanation

**Answer:** Option D

**Explanation:**

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---

26. Carboxylic acid on reduction with HI / phosphorous yields

- |              |             |
|--------------|-------------|
| A. alkane    | B. alcohols |
| C. aldehydes | D. ketones  |

### Answer & Explanation

**Answer:** Option A

**Explanation:**

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---

27. Which of the following is not an ester

- |                      |                    |
|----------------------|--------------------|
| A. amyl acetate      | B. sodium butyrate |
| C. isobutyle formate | D. octyl acetate   |

### Answer & Explanation

**Answer:** Option B

**Explanation:**

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---

28. The reaction of carboxylic acids with alcohols in presence of cone.  $H_2SO_4$  is called

- |                   |                   |
|-------------------|-------------------|
| A. esterification | B. neutralization |
|-------------------|-------------------|

C. hydrolysis

D. saponification

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

29. Which of the following has orange flavour

A. isobutyl formate

B. octyl acetate

C. ethyl butyrate

D. amyl lactate

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

30. Which of the following is not an amino acids

A. glutamic acid

B. lactic acid

C. aspartic acids

D. glycine

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

31. Amino acids present in cheese

A. lysine

B. alanine

C. tyrosine

D. proline

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

32. ? - amino succinic acid is also called

A. lysine

B. aspartic acid

C. alanine

D. glutamic acid

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

33. Which of the following is an unsaturated carboxylic acid

A. malonic acid

B. oxalic acid

C. succinic acid

D. maleic acid

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

1. Which of the following is not a heavy industry?

A. iron

B. fertilizer

C. paper

D. none

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

2. Which of the following is a macronutrient?

A. boron

B. iron

C. copper

D. carbon

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

3. Requirement of macronutrient per acre of the land is

A. 5 to 200 kg

B. 20-200 kg

C. 200-400 kg

D. 30-400 kg

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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4. Three elements needed for the healthy growth of plants are

**A.** N P K

**B.** N K C

**C.** N S P

**D.** N Ca P

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

5. Which of the following is not a secondary pollutant

**A.** ozone

**B.** carbonic acid

**C.** sulphuric acid

**D.** carbon dioxide

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

6. Residence time of methane in the atmosphere is

**A.** 3 - 7 days

**B.** 2 -3 days

**C.** 3 - 7 years

**D.** 2 - 3 years

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

7. Major cause of SO<sub>2</sub> on global scale is
- |               |                    |
|---------------|--------------------|
| A. volcanoes  | B. electric sparks |
| C. combustion | D. all             |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

8. Hypochlorous acid is used for disinfecting the water it reacts with the dissolved ammonia producing
- |                       |                      |
|-----------------------|----------------------|
| A. NH <sub>2</sub> Cl | B. NHCl <sub>2</sub> |
| C. NCl <sub>2</sub>   | D. all of the above  |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

9. Acid present in acid rain may be
- |                                   |                     |
|-----------------------------------|---------------------|
| A. H <sub>2</sub> SO <sub>4</sub> | B. HNO <sub>3</sub> |
| C. both a and b                   | D. none             |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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10. The yellow colour in photochemical smog is due to presence of

- A. dinitrogen oxide                      B. nitrogen dioxide  
C. chlorine gas                              D. chlorine dioxide

**Answer & Explanation**

**Answer:** Option B

**Explanation**

11. Which of the following is not a condition for the formation of smog?

- A. sufficient NO                              B. sunlight  
C. less movement of air                      D. winds

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

12. Incineration of municipal waste is carried out in the temperature range of

- A. 250 to 500°C                              B. 500 to 900°C  
C. 950 to 1300°C                              D. 900 to 1000°C

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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13. In which of the following layer of atmosphere there is more thickness of ozone layer?

A. troposphere

B. stratosphere

C. mesosphere

D. photosphere

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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14. Which of the following is not primary pollutant

A. SO<sub>3</sub>

B. CO

C. NO

D. H<sub>2</sub>SO<sub>4</sub>

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

15. Which of the following air pollutants is more dangerous for ozone layer?

A. CFC

B. CO<sub>2</sub>

C. CO

D. Oxides of nitrogen

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

16. Which of the following gases is the main cause of acid rain?

- A. CO
- B. NO<sub>2</sub>
- C. both a & b
- D. none of the above

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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17. Which statement is wrong?

- A. the amount of ozone layer is greater in the region close to the equator
- B. ozone acts as filter for UV radiations
- C. in the equatorial region it acts as pollutant
- D. CFCs play effective role in removing O<sub>3</sub> in the stratosphere

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

18. Which of the following factors help to measure quality of water?

- A. DO
- B. BOD

C. COD

D. all of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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19. In the purification of portable water the coagulant used is

A. alum

B. nickel sulphate

C. copper sulphate

D. barium sulphate

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

20. Newspaper can be recycled again and again how many times?

A. 2

B. 3

C. 4

D. 5

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

21. The main pollutant of leather tanneries in the waste water is

A. chromium III

B. chromium IV

C. chromium V

D. chromium VI

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

22. A single chlorine free radical can destroy how many ozone molecules?

A. 10

B. 100

C. 10000

D. 100000

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

23. Which substance can be used for disinfecting water?

A.  $\text{KMnO}_4$

B. Alums

C. Ozone

D. All

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

24. Chlorination of water may be harmful if the water contains

A. Ammonia

B. Dissolved oxygen

C. Carbon dioxide

D. All

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

25. Which one of the following makes the bulk of hydrospheres content?

A. oceans

B. glaciers & icecaps

C. fresh water lakes and ponds

D. All have equal distribution

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

26. Which of the following is used as water disinfectant to avoid the formation of toxic compounds

A. Cl<sub>2</sub>

B. O<sub>3</sub>

C. ClO<sub>2</sub>

D. both b & c

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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27. The percentage of suspended solid waste in raw water is removed by coagulation is

- |              |              |
|--------------|--------------|
| <b>A.</b> 60 | <b>B.</b> 70 |
| <b>C.</b> 80 | <b>D.</b> 90 |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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28. Ozone hole is substantial depletion of ozone in every year during

- |                     |                     |
|---------------------|---------------------|
| <b>A.</b> Aug - Nov | <b>B.</b> Sep - Nov |
| <b>C.</b> Nov - Dec | <b>D.</b> Dec - Jan |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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29. The main product of bacterial action is

- |   |                           |
|---|---------------------------|
| <b>A.</b> Nox                           | <b>B.</b> NO <sub>2</sub> |
| <b>C.</b> N <sub>2</sub> O <sub>3</sub> | <b>D.</b> NO              |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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30. Pollutants have adverse effect over

- A. Biosphere
- B. Ecosystem
- C. Both a & b
- D. Hydrosphere

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

1. Diameter of an atom is in the order of

- A. 0.2m
- B. 0.2mm
- C. 0.2nm
- D. 0.2pm

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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2. Which of the following are isoelectronic species?

- A.  $H^+$   $H$   $H^-$
- B.  $Li^+$   $Na^+$   $K^+$
- C.  $Cl^-$   $Br^-$   $I^-$
- D.  $F^-$   $Ne$   $Na^+$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

3. Mass spectrometer is used to determine Mass number of isotopes and

- |                             |                       |
|-----------------------------|-----------------------|
| A. Atomic number            | B. Relative abundance |
| C. Electronic configuration | D. All of the above   |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

4. Molecular ions are formed by passing

- |                              |                        |
|------------------------------|------------------------|
| A. High energy electron beam | B. $\alpha$ - particle |
| C. X-rays                    | D. All of the above    |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

5. The number of peaks obtained in mass spectrometry shows

- |                       |                            |
|-----------------------|----------------------------|
| A. Relative abundance | B. Average mass of element |
| C. Number of isotopes | D. Relative isotopic mass  |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

6. Empirical formula of chloroform is

A.  $\text{CH}_2\text{Cl}_2$

B.  $\text{CHCl}_3$

C.  $\text{CCl}_4$

D.  $\text{CHCl}_3$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

7. Which one is true about isotope?

A. Same number of neutrons

B. Same mass number

C. Same physical properties

D. Same chemical properties

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

8. Molecular mass of water (18g) means

A. 1-mole molecules of water

B. 1-gram molecule of water

C. 3-gram atoms

D. all

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

9. Which of the following ion formation is always exothermic?

A. Uni-negative

B. Uni-positive

C. Di-negative

D. Di-positive

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

10. Which of the following statements about isotopes is correct?

A. Isotopes with odd atomic number are abundant

B. Isotopes with odd atomic number and even mass number are abundant

C. Isotopes with even atomic number and even mass number are abundant

D. Isotopes with even atomic number and odd mass no are abundant

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

11. The sample of isotopes of an element which needs not to be vaporized in the vaporization chamber

- |                          |                  |
|--------------------------|------------------|
| <b>A.</b> Gas            | <b>B.</b> Liquid |
| <b>C.</b> Volatile solid | <b>D.</b> All    |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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12. One mole of CO<sub>2</sub> contains.

- |  |                             |
|--|-----------------------------|
| <b>A.</b> 6.022 x 10 <sup>23</sup> atoms of oxygen | <b>B.</b> 22-gram electrons |
| <b>C.</b> 6.022 x 10 <sup>23</sup> atms of carbon  | <b>D.</b> both b & c        |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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13. Avogadro's number may represent

- |                               |                               |
|-------------------------------|-------------------------------|
| <b>A.</b> volume of particles | <b>B.</b> number of particles |
| <b>C.</b> mass of particles   | <b>D.</b> All of the above    |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

14. The number of isotopes of elements with even mass number and even atomic number are.

A. 280

B. 300

C. 154

D. 54

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

15. Size of molecule depends upon

A. Atomicity

B. Shape of molecule

C. Both a and b

D. Difficult to predict

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

16. Which of the following terms is not used for ionic compound?

A. formula unit

B. empirical formula

C. molecular formula

D. formula mass

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

17. 0.36 moles of each aluminium and oxygen react with each other to produce aluminium oxide. The amount of product formed is

A. 0.18 mole

B. 0.27 mole

C. 0.24 mole

D. 0.09 mole

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

18. Which of the following terms is used for the mass of chlorine 35.5?

A. relative atomic mass

B. mass number

C. atomic weight

D. relative isotopic mass

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

19. Which one of the following has the maximum number of isotopes?

A. oxygen

B. carbon

C. tin

D. chlorine

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

20. Which one of the following is not the mono isotopic element?

- |            |            |
|------------|------------|
| A. arsenic | B. uranium |
| C. iodine  | D. nickel  |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

21. The volume occupied by 2.8 g of N<sub>2</sub> at STP

- |                         |                         |
|-------------------------|-------------------------|
| A. 2.24 dm <sup>3</sup> | B. 22.4 dm <sup>3</sup> |
| C. 1.12 dm <sup>3</sup> | D. 112 dm <sup>3</sup>  |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

22. The mass of decimole of electrons (N<sub>A</sub>) is

- |             |             |
|-------------|-------------|
| A. 1.008 mg | B. 0.184 mg |
| C. 0.054 mg | D. 5.4 mg   |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

23. The number of moles of CO<sub>2</sub> which contains 16 g of oxygen is

- |         |        |
|---------|--------|
| A. 0.25 | B. 0.5 |
| C. 0.75 | D. 1   |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

24. Which of the following statements is wrong about isotopes?

- |  |  |
|--|--|
| A. they possess different mass number    | B. they possess different physical properties            |
| C. they possess same chemical properties | D. they possess different position in the periodic table |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

25. How many isotopes have odd atomic number?

- |        |        |
|--------|--------|
| A. 154 | B. 280 |
| C. 86  | D. 300 |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

26. Qualitative analysis is carried out for

A. identification of elements

B. estimation of amounts of elements

C. molar ration of elements

D. molar volume of elements

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

27. Percentage of calcium in calcium carbonate is

A. 80%

B. 30%

C. 40%

D. 20%

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

28. Combustion analysis is performed to determine

A. Empirical formula

B. Molecular mass

C. Molecular formula

D. Formula mass

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

29. Mostly elements have fractional atomic masses because of

A. mass of an atom itself is in fraction

B. atomic masses are average masses of isobars

C. atomic masses are average masses of isotopes proportional to their relative abundance

D. atomic masses are average masses of isotopes

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

30. Isotopes differ in

A. properties which depend upon mass

B. arrangement of electrons in orbitals

C. chemical properties

D. all of the above

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

31. Which of the following is not a macromolecule?

- |            |                |
|------------|----------------|
| A. sand    | B. haemoglobin |
| C. diamond | D. maltose     |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

32. Which of the following methods is used to estimate hydrogen in an organic compound?

- |                      |  |
|----------------------|--|
| A. Combustion method | B. Dumas method  |
| C. Kjeldahls method  | D. All of the above methods are for different purposes |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

33. Isotopes of the same elements has

- |                                 |                                      |
|---------------------------------|--------------------------------------|
| A. different number of protons  | B. same number of neutrons           |
| C. different number of neutrons | D. same mass number (nucleon number) |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

34. The nucleus of an atom of every element will always contain

- A. neutrons
- B. protons and electrons
- C. protons
- D. protons and neutrons

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

35. When cationic molecular ions are allowed to pass through strong magnetic field in mass spectrometer which of the following ions is fallen

- A. lighter
- B. intermediate
- C. heavier
- D. are collected at same time

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

36. When 0.5 mole of phosphoric acid is dissolved in aqueous solution how many moles of -ve and +ve ions are collected altogether?

- A. 0.5
- B. 1
- C. 1.5
- D. 2

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

37. For which of the following compounds the term empirical formula cannot be applied?

A. NaCl

B. H<sub>2</sub>O

C. CCl<sub>4</sub>

D. It can be applied to all mentioned above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

38. Dempsters mass spectrometer has number of zones / parts

A. 5

B. 4

C. 3

D. 2

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

39. The properties of an element mostly corresponds to that isotope which has greater

- A. Mass number
- B. Atomic mass
- C. Relative abundance
- D. all of the above

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

40. 1 a.m.u =

- A.  $1.6 \times 10^{-27}$  kg
- B.  $1.6 \times 10^{-24}$  kg
- C.  $1.6 \times 10^{-26}$  kg
- D.  $1.6 \times 10^{-28}$  kg

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

1. Which of the following has strongest intermolecular forces of attraction?
  - A. Hydrogen ( $H_2$ )
  - B. Chlorine ( $Cl_2$ )
  - C. Iodine ( $I_2$ )
  - D. Methane ( $CH_4$ )

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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- 
2. Which has strongest bonding in the solid state?

- A.** Hydrogen Chloride (HCl)      **B.** Chlorine (Cl<sub>2</sub>)
- C.** Xenon(Xe)      **D.** Sodium Chloride (NaCl)

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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- 
3. When substance moves from a solid to a liquid state all of the following changes occur except

- A.** Molecules become more disordered      **B.** K.E of the molecules decreases
- C.** Intermolecular forces become weaker      **D.** Molecule become further separated

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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- 
4. When the atoms of third layer are arranged in such a way that they directly lie above the atoms of first layer then this arrangement is called

- A.** ABAB (hexagonal)      **B.** ABCABC (Cubic)
- C.** Orthorhombic      **D.** Rhombohedral

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

5. In order to mention the boiling point of water at  $110^{\circ}\text{C}$  the external pressure should be
- A. Between 760 torr and 1200 torr      B. Between 200 torr and 760 torr
- C. 765 torr      D. any value of pressure

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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6. Which one is false for evaporation?
- A. Surface phenomenon      B. Continuous
- C. Exothermic      D. Cause cooling

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

7. Vapour pressure of water at  $100^{\circ}\text{C}$  is
- A. 55 mm Hg      B. 760 mm Hg
- C. 355 mm Hg      D. 1489 mm Hg

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

8. Which one of the following does not show hydrogen bonding ?

A. Water

B. Ethyl alcohol

C. Phenol

D. Diethyl ether

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

9. Liquid crystal is discovered by

A. William Crooks

B. Fredrick Reinitzer

C. J.J Thomson

D. Bravis

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

10. Which one is a conductor but is not malleable?

A. Iron

B. Graphite

C. Silver

D. Platinum

### Answer & Explanation

**Answer:** Option B

**Explanation:**

11. Hydrogen bonding is involved in

- |                         |                                   |
|-------------------------|-----------------------------------|
| A. Solubility           | B. Cleansing action of detergents |
| C. Biological molecules | D. All                            |

### Answer & Explanation

**Answer:** Option D

**Explanation:**

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---

12. Actually the vapour pressure on the surface of liquid in the flask is equal to

- |                   |                         |
|-------------------|-------------------------|
| A. $\rho h$       | B. $P_a - \rho h$       |
| C. $P_a + \rho h$ | D. $P_t = P_a - \rho h$ |

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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---

13. Forces of attraction which may be present between all kinds of atoms and molecules are

- |                   |                   |
|-------------------|-------------------|
| A. intramolecular | B. intermolecular |
|-------------------|-------------------|

C. van der Waal

D. Dipole-induced dipole

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

14. The density of water may be

A. Equal to that of ice

B. Greater than that of ice

C. Less than that of ice

D. All are possible

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

15. The quantity of heat required to convert one mole of liquid into its vapours at its boiling point is called molar heat of

A. vaporization

B. evaporation

C. crystallization

D. sublimation

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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16. Steam causes more severe burn than the boiling water because it possesses.

- A. Latent heat of fusion                      B. Latent heat of vaporization  
C. Latent heat of sublimation                D. All of the above

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

17. Water has maximum density at

- A. 0°C    B. 2°C  
C. 4°C    D. 100°C

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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18. The conversion of vapours back into their liquid state is called

- A. crystallization                              B. evaporation  
C. vaporization                                 D. condensation

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

19. Formation of vapours from the surface of a liquid is called

- A. vapourization    B. evaporation  
C. condensation     D. cracking

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

[View Answer](#) [Workspace](#) [Report](#) [Discuss](#) [in Forum](#)

20. When water freezes at  $0^{\circ}\text{C}$  its density decreases due to

- A. Change of bond angles    B. Cubic structure of ice  
C. Empty space present in the structure of ice             D. Change of bond length

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

21. The attractive forces between the partial positive end of one molecule and partial negative end of other molecule are called

- A. Dipole-dipole forces    B. Ion dipole-dipole forces  
C. London dispersion forces                                        D. Debye forces

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

22. The boiling point increases down the zero group element due to

- A. Ion dipole forces                      B. London forces  
C. Hydrogen bonding                      D. Dipole dipole forces

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

23. Vapour pressure is not affected by

- A. Surface area                              B. temperature  
C. intermolecular forces                      D. atmospheric pressure

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

24. Rising of a wetting liquid in a capillary tube is due to

- A. Surface tension                              B. Cohesive forces  
C. Adhesive forces                              D. viscosity

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

25. Table salt crystallizes with a

- A. Face centered cubic lattice      B. body centered cubic lattice  
C. simple cubic lattice      D. orthorhombic lattice

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

26. The number of formula units in 29.25g of common salt

- A.  $6.022 \times 10^{23}$       B.  $3.01 \times 10^{23}$   
C.  $2 \times N_A$       D.  $4 \times 6.022 \times 10^{23}$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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27. During which process empty spaces between particles become minimum?

- A. ionization      B. condensation  
C. fusion      D. evaporation

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

28. Liquid gets the shape of the container when it is poured into it. Which one of the following reasons justifies it?

- |   |  |
|---|--|
| <b>A.</b> Liquid do not have definite shape | <b>B.</b> Liquid do not have definite volume         |
| <b>C.</b> Lieuid is highly compressible     | <b>D.</b> Liquid molecules can slide over each other |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

29. Which one of the following has highest volatility

- |                         |                           |
|-------------------------|---------------------------|
| <b>A.</b> Diethyl ether | <b>B.</b> Ethyl alcohol   |
| <b>C.</b> Water         | <b>D.</b> Ethylene glycol |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

30. Molar heat of vaporization of water is

- |                         |                          |
|-------------------------|--------------------------|
| <b>A.</b> 40.7 KJ/mole  | <b>B.</b> 40.7 J/mole    |
| <b>C.</b> 40.7 cal/mole | <b>D.</b> 40.7 Kcal/mole |

### Answer & Explanation

**Answer:** Option A

**Explanation:**

31. If we provide very high amount of heat to a liquid its boiling point will

- |                    |                                    |
|--------------------|------------------------------------|
| <b>A.</b> increase | <b>B.</b> remains constant         |
| <b>C.</b> decrease | <b>D.</b> there will be no boiling |

### Answer & Explanation

**Answer:** Option B

**Explanation:**

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32. Crystallites are present in

- |                              |                            |
|------------------------------|----------------------------|
| <b>A.</b> crystalline solids | <b>B.</b> amorphous solids |
| <b>C.</b> liquid crystals    | <b>D.</b> all of the above |

### Answer & Explanation

**Answer:** Option B

**Explanation:**

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---

33. A solid may be made up of

- |                     |                     |
|---------------------|---------------------|
| <b>A.</b> Atoms     | <b>B.</b> Ions      |
| <b>C.</b> Molecules | <b>D.</b> a b and c |

### Answer & Explanation

**Answer:** Option D

**Explanation:**

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---

34. A malleable solid is one which can be

- |                                |                                      |
|--------------------------------|--------------------------------------|
| <b>A.</b> Converted into wires | <b>B.</b> Converted into thin sheets |
| <b>C.</b> Melted easily        | <b>D.</b> All of the above           |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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35. Amorphous substances possess

- |                                   |                                      |
|-----------------------------------|--------------------------------------|
| <b>A.</b> No definite geometry    | <b>B.</b> No definite heat of fusion |
| <b>C.</b> No sharp melting points | <b>D.</b> All of the above           |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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36. Crystalline solids can be identified easily from their

- |                                  |                             |
|----------------------------------|-----------------------------|
| <b>A.</b> Sharp melting point    | <b>B.</b> Definite geometry |
| <b>C.</b> Transition temperature | <b>D.</b> Colour            |

### Answer & Explanation

**Answer:** Option A

**Explanation:**

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---

37. Boiling points of hydrocarbons increase with the increase in number of carbon atoms. It is mainly due to

- |                                      |  |
|--------------------------------------|--|
| <b>A.</b> More strength of H-bonding | <b>B.</b> More strength of London forces |
| <b>C.</b> Less polarizability        | <b>D.</b> All of the above               |

### Answer & Explanation

**Answer:** Option B

**Explanation:**

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38. Ice is \_\_\_\_\_ crystal

- |                    |                     |
|--------------------|---------------------|
| <b>A.</b> Metallic | <b>B.</b> Molecular |
| <b>C.</b> Covalent | <b>D.</b> Ionic     |

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---

39. Select a pair of compounds which are isomorphous in nature.

- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| <b>A.</b> NaCl and KNO <sub>3</sub> | <b>B.</b> MgO and NaF               |
| <b>C.</b> KNO <sub>3</sub> and MgO  | <b>D.</b> NaF and CaCO <sub>3</sub> |

### Answer & Explanation

**Answer:** Option B

**Explanation:**

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40. The viscosity of solids is

- |                    |  |
|--------------------|--|
| <b>A.</b> Infinite | <b>B.</b> Negligible                       |
| <b>C.</b> Medium   | <b>D.</b> No concept of viscosity in solid |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

41.  $a \neq b \neq c$  and  $\alpha \neq \beta \neq \gamma$  is representation of crystal system

- |                      |                     |
|----------------------|---------------------|
| <b>A.</b> Monoclinic | <b>B.</b> Triclinic |
| <b>C.</b> Hexagonal  | <b>D.</b> Trigonal  |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

42. The phenomenon in which a compound exists in two or more crystalline forms is called

- |                       |                        |
|-----------------------|------------------------|
| <b>A.</b> Isomorphism | <b>B.</b> Polymorphism |
| <b>C.</b> Anisotropy  | <b>D.</b> Allotropy    |

### **Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

43. Which solids are called true solids?

- |                       |                     |
|-----------------------|---------------------|
| <b>A.</b> Metallic    | <b>B.</b> Amorphous |
| <b>C.</b> Crystalline | <b>D.</b> Vitreous  |

### **Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

44. Bucky balls is an allotropic form of

- |                   |                  |
|-------------------|------------------|
| <b>A.</b> Sulphur | <b>B.</b> Carbon |
| <b>C.</b> Silica  | <b>D.</b> Tin    |

### **Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

45. The number amino acid units for each turn of helix on average are

- |              |              |
|--------------|--------------|
| <b>A.</b> 21 | <b>B.</b> 23 |
|--------------|--------------|

C. 25

D. 27

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

46. Isomorphous substances have

A. Same physical and chemical properties

B. Same physical and different chemical properties

C. Different physical and same chemical properties

D. Different physical and chemical properties

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

47. If a physical and chemical change takes place at a constant pressure then the heat change during the process is called

A. Heat of transition

B. Heat of fusion

C. Enthalpy change

D. All of above

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

48. The pressure during the molar heat of fusion is kept

- A. 0 atmosphere
- B. one atmosphere
- C. 2 atmosphere
- D. 10 atmosphere

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

49. The amount of heat absorbed when one mole of a liquid is changed into gas at its boiling point is

- A. Molar heat of sublimation
- B. Molar heat of fusion
- C. Molar heat of vapourization
- D. Latent heat of that liquid

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

50. All the enthalpy changes are

- A. Negative
- B. Positive
- C. May or may not be a or b
- D. none

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

1. Which one is not state function

- |                      |             |
|----------------------|-------------|
| A. Internal energy   | B. Enthalpy |
| C. Gibbs free energy | D. Work     |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

2. If  $\Delta H$  value is less than zero than reaction will be

- |  |                  |
|--|------------------|
| A. Exothermic                                  | B. Endothermic   |
| C. May or may not be Exothermic or Endothermic | D. None of these |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

3. If internal energy of the system is increased

- |   |                                       |
|---|---------------------------------------|
| A. Change in state of the system is increased | B. Temperature of the system may rise |
| C. Chemical reaction may take place           | D. All                                |

**Answer & Explanation**

**Answer:** Option D



**Answer:** Option A

**Explanation:**

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---

7. The environment in which a system is studied is
- |                          |                 |
|--------------------------|-----------------|
| <b>A.</b> State function | <b>B.</b> phase |
| <b>C.</b> surrounding    | <b>D.</b> state |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

8. Unit of heat in SI system is
- |               |                |
|---------------|----------------|
| <b>A.</b> J   | <b>B.</b> KCal |
| <b>C.</b> Cal | <b>D.</b> GJ   |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

9. Anything which depends upon initial and final state of a system is
- |                          |                       |
|--------------------------|-----------------------|
| <b>A.</b> environment    | <b>B.</b> surrounding |
| <b>C.</b> state function | <b>D.</b> enthalpy    |

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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---

10. Total energy of a system is

- |                             |                                   |
|-----------------------------|-----------------------------------|
| <b>A.</b> P.E + K.E         | <b>B.</b> P.E + heat energy       |
| <b>C.</b> K.E + heat energy | <b>D.</b> P.E + mechanical energy |

### Answer & Explanation

**Answer:** Option A

**Explanation**

11. Mathematical form of first law of thermodynamics is

- |                                   |                              |
|-----------------------------------|------------------------------|
| <b>A.</b> $\Delta H = qp$         | <b>B.</b> $\Delta E = q + W$ |
| <b>C.</b> $\Delta E = q \times v$ | <b>D.</b> all of the above   |

### Answer & Explanation

**Answer:** Option B

**Explanation:**

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---

12. Reaction in which heat evolves is called

- |                           |                       |
|---------------------------|-----------------------|
| <b>A.</b> endothermic     | <b>B.</b> spontaneous |
| <b>C.</b> non-spontaneous | <b>D.</b> exothermic  |

### Answer & Explanation

**Answer:** Option **D**

**Explanation:**

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---

13.  $\text{CuSO}_4 + \text{Zn} \rightarrow \text{ZnSO}_4 + \text{Cu}$  is

- |                                |                                    |
|--------------------------------|------------------------------------|
| <b>A.</b> Spontaneous reaction | <b>B.</b> Non-spontaneous reaction |
| <b>C.</b> Endothermic          | <b>D.</b> Exothermic               |

**Answer & Explanation**

**Answer:** Option **A**

**Explanation:**

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---

14. Pumping of water uphill is

- |                                |                                   |
|--------------------------------|-----------------------------------|
| <b>A.</b> spontaneous process  | <b>B.</b> non-spontaneous process |
| <b>C.</b> irreversible process | <b>D.</b> reversible process      |

**Answer & Explanation**

**Answer:** Option **B**

**Explanation:**

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---

15. State function the macroscopic property of system depends upon

- |                            |                                   |
|----------------------------|-----------------------------------|
| <b>A.</b> path of reaction | <b>B.</b> initial state           |
| <b>C.</b> final state      | <b>D.</b> initial and final state |

### **Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

16. Which one of the following is a state function?

- |             |                     |
|-------------|---------------------|
| A. pressure | B. temperature      |
| C. enthalpy | D. all of the above |

### **Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

17. When enthalpy of reactants is higher than product then reaction will be

- |                    |                |
|--------------------|----------------|
| A. endothermic     | B. spontaneous |
| C. non-spontaneous | D. exothermic  |

### **Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

18. Enthalpy of a reaction can be measured by

- |                      |              |
|----------------------|--------------|
| A. glass calorimeter | B. manometer |
|----------------------|--------------|

C. Barometer

D. thermometer

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

19. Enthalpy of combustion for food fuel and other compounds can be measured accurately by

A. glass calorimeter

B. bomb calorimeter

C. thermometer

D. manometer

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

20. The lattice energy of NaCl is

A. 787 KJ/mole

B. 787 J/mole

C. 780 KJ/mole

D. 790 KJ/mole

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

21. Most of thermodynamic parameters are

A. system

B. surrounding

C. phase

D. state functions

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

22.  $\Delta H$  of a system can be calculated by which of following relationship

A.  $q = m \times s \times \Delta T$

B.  $q = \Delta E$

C.  $q = m \times v \times \Delta T$

D.  $q = pV$

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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23. Change in enthalpy ( $H$ ) of a system can be calculated by following relationship

A.  $\Delta H = \Delta E + P\Delta V$

B.  $\Delta H = \Delta E - PV$

C.  $\Delta H = \Delta E - q$

D.  $\Delta H = \Delta E + q$

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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24. Which of the following is correct

A.  $q_p > q_v$

B.  $\Delta E < \Delta H$

C.  $\Delta E > \Delta H$

D. Both a & b

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

25. Two fundamental ways to transfer energy are

A. pressure and temperature

B. pressure and volume

C. heat and work

D. heat and volume

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

26. Which of the following processes has always  $\Delta H = -ve$

A. formation of compound

B. combustion

C. dissolution of ionic compound

D. dilution of a solution

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

27. Enthalpy change can be

- A. calculated by Hess law                      B. can be measured by calorimeter
- C. both a and b                                      D. none

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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28. If there is interconversion of solid and liquid states then

- A.  $\Delta V = 0$     B.  $\Delta H = \Delta E$
- C.  $\Delta H > \Delta E$     D. both a & b

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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29. In order to determine  $\Delta H_{\text{latt}}$  of ionic compound which is correct relationship

- A.  $\Delta H_{\text{latt}} = \Delta H_{\text{f}} - \Delta H_{\text{x}}$                                       B.  $\Delta H_{\text{latt}} = \Delta H_{\text{f}} + \Delta H_{\text{x}}$
- C.  $\Delta H_{\text{latt}} = \Delta H_{\text{a}} + \Delta H_{\text{v}}$                                       D.  $\Delta H_{\text{latt}} = \Delta H_{\text{f}} - \Delta H_{\text{sol}}$

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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30. Hess law can be applied to determine

- A.  $\Delta H_f$
- B.  $\Delta H_{latt}$
- C.  $\Delta H_{comb}$
- D. All of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

1. Which of the following element act as inert electrode

- A. Cu
- B. Ag
- C. Pt
- D. None

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

2. If electricity is passed through  $\text{CuSO}_4$  solution by using Pt electrode then which of the following possible change occurs?

- A.  $\text{H}_2$  is deposited at cathode
- B. Colour of the solution becomes fade
- C. Cu is deposited at anode
- D. All are possible

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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3. Stronger the oxidizing agent greater is the
- |                        |                        |
|------------------------|------------------------|
| A. Oxidation potential | B. Reduction potential |
| C. Redox potential     | D. emf of cell         |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

4. Which has maximum oxidation number?
- |      |       |
|------|-------|
| A. N | B. Cr |
| C. S | D. Mn |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

5. Which of the following cell is not rechargeable?
- |                         |                      |
|-------------------------|----------------------|
| A. Lead storage battery | B. Silver oxide cell |
| C. Fuel cell            | D. Ni-Cd cell        |

**Answer & Explanation**

**Answer: Option B**

**Explanation:**

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---

6. In an electrolytic cell current flows ?

- |  |  |
|--|--|
| <b>A.</b> From cathode to anode in outer circuit | <b>B.</b> From anode to cathode outside the cell |
| <b>C.</b> From cathode to anode inside the cell  | <b>D.</b> both b & c                             |

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7. Which of the following is true in the case of Zn-Cu cell?

- |   |   |
|---|---|
| <b>A.</b> The flow of electrons takes place from copper to zinc | <b>B.</b> $E^{\circ}$ red of copper electrode is less than that of zinc electrode |
| <b>C.</b> Zinc acts as an anode and copper as cathode           | <b>D.</b> All are correct   |

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8. In a galvanic cell

- |   |  |
|---|--|
| <b>A.</b> Chemical energy is converted into electricity       | <b>B.</b> Chemical energy is converted into heat   |
| <b>C.</b> Electrical energy is converted into chemical energy | <b>D.</b> Electrical energy is converted into heat |

**Answer & Explanation**

**Answer: Option A**

**Explanation:**

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9. The degree of dissociation of weak electrolyte increases as
- A. Pressure increases                      B. Dilution decreases
- C. Dilution increases                      D. None

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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10. Molten NaCl conducts electricity due to the presence of
- A. Free electrons                      B. Free molecules
- C. Free ions                      D. Atoms of Na and Cl

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

11. In which of the following reactions occur at cathode?
- A.  $\text{Cu}^{2+} + 2\text{e}^- \rightarrow \text{Cu}$                       B.  $\text{Cu} + 2\text{e}^- \rightarrow \text{Cu}^{2+}$
- C.  $\text{Hg} + \text{O}_2 \rightarrow \text{HgO}$                       D.  $\text{Mg} + \text{O}_2 \rightarrow \text{MgO}$

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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12. Electricity in voltaic cell is produced due to

- |                          |                      |
|--------------------------|----------------------|
| <b>A.</b> neutralization | <b>B.</b> oxidation  |
| <b>C.</b> reduction      | <b>D.</b> both b & c |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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13. In electrolytic solution conductance of electricity is due to

- |                          |                      |
|--------------------------|----------------------|
| <b>A.</b> free electrons | <b>B.</b> ions       |
| <b>C.</b> metals         | <b>D.</b> electrodes |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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14. In electrolytic cell electricity carries

- |                                |                                    |
|--------------------------------|------------------------------------|
| <b>A.</b> spontaneous reaction | <b>B.</b> non-spontaneous reaction |
| <b>C.</b> neutralization       | <b>D.</b> all of above             |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

15. Reaction at anode is called

- |                     |                         |
|---------------------|-------------------------|
| <b>A.</b> oxidation | <b>B.</b> reduction     |
| <b>C.</b> redox     | <b>D.</b> decomposition |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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16. In an electrolytic cell cathode provides electrons to

- |                        |   |
|------------------------|---|
| <b>A.</b> ve ion       | <b>B.</b> ?ve ion                       |
| <b>C.</b> neutral atom | <b>D.</b> does not provide any electron |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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17. In Galvanic cell electrons flow from anode to cathode through

- |                                     |                            |
|-------------------------------------|----------------------------|
| <b>A.</b> external electric circuit | <b>B.</b> salt bridge      |
| <b>C.</b> movement of ions          | <b>D.</b> all of the above |

### Answer & Explanation

**Answer:** Option A

**Explanation:**

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18. Decrease in oxidation number is called

- |                        |                                       |
|------------------------|---------------------------------------|
| A. oxidation           | B. reduction                          |
| C. oxidation-reduction | D. all of above represent same entity |

### Answer & Explanation

**Answer:** Option B

**Explanation:**

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---

19. For the measurement of standard electrode potential Zn is dipped in

- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| A. 1 M ZnO solution                 | B. 1 M ZnSO <sub>4</sub> solution   |
| C. 1.5 M ZnSO <sub>4</sub> solution | D. 0.1 M ZnSO <sub>4</sub> solution |

### Answer & Explanation

**Answer:** Option B

**Explanation:**

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---

20. Right half cell contains \_\_\_\_\_ electrode

- |       |       |
|-------|-------|
| A. Al | B. Zn |
|-------|-------|

C. Cu

D. Fe

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

21.  $\text{Zn(s)}/\text{Zn}^{2+}(\text{aq})\ 1\text{M} \parallel \text{Cu}^{2+}(\text{aq})\ 1\text{M}/\text{Cu(s)}$  is representation of reaction in

A. Daniel cell

B. Downs cell

C. Voltaic cell

D. Nelsons cell

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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22. Salt bridge transfers

A. electrons

B. anion

C. current

D. ions

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

23. Voltaic cell can be recharged by

A. by addition of fresh solution

B. by replacing external circuit with external source of

electricity

C. by removal of solution

D. by heating it

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

24. E0red of an element can be calculated by comparing it with

A. New electrode of same element

B. SHE

C. 1M solution of ions of respective element

D. 2M solution of HCl

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

25. Temperature for the measurement of standard electrode potential is

A. 298K

B. 300K

C. 30°C

D. 310K

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

26. H<sub>2</sub> gas in SHE is filled at pressure of

- |                |                |
|----------------|----------------|
| A. 760mm of Hg | B. 750mm of Hg |
| C. 780mm of Hg | D. 800mm of Hg |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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27. Potential of SHE is considered as

- |             |                  |
|-------------|------------------|
| A. zero     | B. unity         |
| C. constant | D. multiple of 1 |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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28. Chemical used in salt bridge is

- |                     |        |
|---------------------|--------|
| A. KOH              | B. KCl |
| C. KNO <sub>3</sub> | D. KBr |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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29. Electrode potential of Zn is

- |                        |   |
|------------------------|---|
| A. oxidation           | B. reduction                                      |
| C. oxidation-reduction | D. depends on the nature of the coupled electrode |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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30. List of elements based on hydrogen scale is called

- |                   |                           |
|-------------------|---------------------------|
| A. periodic table | B. groups                 |
| C. periods        | D. electrochemical series |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

31. The element that act as anode always have \_\_\_\_\_ position in electrochemical cell

- |              |                          |
|--------------|--------------------------|
| A. higher    | B. lower                 |
| C. in middle | D. no effect of position |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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32. In galvanic cell Zn acts as an anode so its value of standard reduction potential in comparison to coupled electrode would be

- A. greater
- B. lesser
- C. sum of reduction and oxidation potentials
- D. none

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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33. Greater value of standard reduction potential greater will be tendency

- A. to get oxidized
- B. to get reduced
- C. to accept electrons
- D. both b and c

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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34. Greater value of standard reduction potential smaller will be tendency

- A. to form positive ions
- B. to form negative ions

C. gain electrons

D. all are possible

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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35. Secondary cell is

A. rechargeable

B. non rechargeable

C. electrolytic cell

D. Daniel cell

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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36. Lead accumulators are

A. secondary cell

B. primary cell

C. voltaic cell

D. both a & c

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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37. Density of H<sub>2</sub>SO<sub>4</sub> in lead accumulator is

A. 1.25g/cm<sup>3</sup>

B. 1.3g/cm<sup>3</sup>

C. 1.20g/cm<sup>3</sup>

D. 1.15g/cm<sup>3</sup>

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

38. Capacity of one lead accumulator cell is

A. 1.5 volts

B. 2 volts

C. 3 volts

D. 1 volts

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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39. In alkaline battery the anode is made up of

A. MnO<sub>2</sub>

B. Zn

C. AgO<sub>2</sub>

D. cadmium

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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40. The strength of solution of an element whose electrode potential is to be measured is

- A.** 2M **B.** 1N  
**C.** 1m **D.** 1M

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

41. Apparent charge on atom in molecule is

- A.** valency **B.** coordination number  
**C.** oxidation number **D.** charge number

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

42. Voltaic cell is a

- A.** irreversible cell **B.** reversible cell  
**C.** alkaline cell **D.** all of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

43. In  $K_2Cr_2O_7$  the oxidation number of chromium is

- |              |              |
|--------------|--------------|
| <b>A.</b> 7  | <b>B.</b> 6  |
| <b>C.</b> -7 | <b>D.</b> -6 |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

44. Percentage of sulphuric acid in lead accumulator is

- |               |               |
|---------------|---------------|
| <b>A.</b> 40% | <b>B.</b> 25% |
| <b>C.</b> 30% | <b>D.</b> 50% |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

45. The reduction potential Zn is

- |                 |                 |
|-----------------|-----------------|
| <b>A.</b> 0.76  | <b>B.</b> -0.76 |
| <b>C.</b> -0.55 | <b>D.</b> 0.55  |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

46. The half cells are interconnected through

- A. wire
- B. salt bridge
- C. electric circuit
- D. no connection exists

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

1. I ? A elements are named as alkali metals because

- A. Their oxides are basic
- B. Their oxide and hydroxides are water soluble
- C. Both a & b
- D. They are found in earth

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

2. The word Alkali means

- A. Base
- B. Basic salt
- C. Ashes
- D. Spirit

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

3. Formula of Chile saltpetre is

A.  $\text{NaNO}_3$

B.  $\text{CaCO}_3$

C.  $\text{Ba}(\text{NO}_3)_2$

D.  $\text{NH}_4\text{Cl}$

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

4. The elements which are very abundant in earth crust are

A. Si & A?

B. Ca & Mg

C. B & A?

D. All

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

5. The oxides of beryllium  $\text{BeO}$  is

A. Acidic

B. Basic

C. Amphoteric

D. Neutral

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

6. Which element is necessary for normal leaf development?

- |       |       |
|-------|-------|
| A. Si | B. Ba |
| C. Mg | D. Ca |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

7. Li is different from its family members due to

- |                           |                        |
|---------------------------|------------------------|
| A. small size             | B. high charge density |
| C. less electropositivity | D. all of the above    |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

8. Carbonates of lithium are not stable like that of sodium due to

- |                          |                          |
|--------------------------|--------------------------|
| A. Low electronegativity | B. Low electropositivity |
| C. Low charge density    | D. Not known yet         |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

9. Nitrates of which pair of elements give different products on thermal decomposition?

A. Na K

B. Mg Ca

C. Li Na

D. Li Ca

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

10. Which one of the following is not an alkali metal?

A. Francium

B. Caesium

C. Rubidium

D. Radium

**Answer & Explanation**

**Answer:** Option D

**Explanation**

11. Which of the following sulphates is not soluble in water?

A. Sodium sulphate

B. Potassium sulphate

C. Zinc sulphate

D. Barium sulphate

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

12. The element cesium bears resemblance with

- A.** Ca    **B.** Cr  
**C.** Both of the above                      **D.** None of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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13. The ore  $\text{CaSO}_4 \cdot \text{H}_2\text{O}$  has the general name

- A.** Gypsum                                      **B.** Dolomite  
**C.** Calcite                                       **D.** Plaster of Paris

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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14. Downs cell is used to prepare

- A.** Sodium carbonate                      **B.** Sodium bicarbonate  
**C.** Sodium metal                          **D.** Sodium hydroxide

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

15. Which element is produced at the cathode during the electrolysis of brine in Nelsons cell?

A.  $H_2$

B. Na

C.  $Cl_2$

D.  $O_2$

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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16. Ammonia may be prepared by heating ammonium chloride with

A. Water

B. NaCl

C. Aqueous sodium hydroxide

D.  $H_2SO_4$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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17. Calcium carbide is prepared by heating lime with coke at

A.  $2500^\circ C$

B.  $2600^\circ C$

C. 2700°C

D. 2800°C

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

18. Crystals of  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$  when exposed to air

A. Lose water and remain solid

B. Gain water and remain solid

C. Gain water and become liquid

D. Remains unchanged

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

19. Which one of the following substances conducts electricity by the movement of ions?

A. Graphite

B. Copper

C. Molten sodium chloride

D. Mercury

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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20. Which one of the following gives white precipitate with aqueous solution of

BaC<sub>2</sub>?

A. NaHCO<sub>3</sub>

B. NaNO<sub>3</sub>

C. Na<sub>2</sub>CO<sub>3</sub>

D. Na<sub>2</sub>CrO<sub>4</sub>

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

21. Which one of the following carbonate is water insoluble?

A. Na<sub>2</sub>CO<sub>3</sub>

B. K<sub>2</sub>CO<sub>3</sub>

C. (NH<sub>4</sub>)<sub>2</sub>CO<sub>3</sub>

D. CaCO<sub>3</sub>

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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22. The deliquescence is a property in which a solid

A. Absorbs moisture and remains solid

B. Absorbs moisture and turns to liquid form

C. Loses water of crystallization

D. Increases the number of water of crystallization

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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23. In diaphragm cell hydrogen is discharged by the reduction of

- A. Water  
C.  $\text{Na}^+$
- B.  $\text{HCl}$   
D.  $\text{NaCl}$

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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24. In diaphragm cell level of brine in anode compartment is kept slightly higher which prevents

- A. Hydroxide ions to reach anode  
C. Cathode to decay
- B. Chlorine gas to mix  
D. All of the above

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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25. Gypsum is applied to the soil as a source of

- A. Ca and P  
C. Ca and S
- B. S and P  
D. we could not apply

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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26. Alkali and alkaline earth metals impart colours when heated over burner. It is due to

- |  |  |
|--|--|
| <b>A.</b> Smaller electronegativity of alkali metals                               | <b>B.</b> Smaller ionic radius of these metals                                   |
| <b>C.</b> De-excitation of electrons from higher energy levels to low energy level | <b>D.</b> Excitation of electrons from low energy levels to higher energy levels |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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27. Which one of the following alkali metals forms only normal oxide when it reacts with O<sub>2</sub>?

- |                     |                    |
|---------------------|--------------------|
| <b>A.</b> Lithium   | <b>B.</b> Sodium   |
| <b>C.</b> Potassium | <b>D.</b> Rubidium |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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28. First ionization potential of alkaline earth metal is greater than alkali metals because

- A. They are more reactive                      B. They have greater atomic radii
- C. They have smaller atomic sizes                      D. All

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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29. Which one of the following pairs shown diagonal relationship in the periodic table?

- A. Sodium and Lithium                      B. Lithium and magnesium
- C. Lithium and beryllium                      D. Boron and Beryllium

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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30. NaOH is named as caustic soda because

- A. It corrodes the organic tissues                      B. It is used in soda water
- C. It reacts with chlorine gas                      D. It reacts with fats to form soap

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

31. Sodium is not observed in +2 oxidation state because of its

- A. high first ionization potential      B. high second ionization potential  
C. high ionic radius      D. high electronegativity

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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32. Carnalite has chemical formula

- A. KCl      B.  $\text{KCl} \cdot \text{MgCl}_2 \cdot 6\text{H}_2\text{O}$   
C.  $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$       D.  $\text{CaCO}_3 \cdot \text{MgCO}_3$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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33. Magnesium metal does not burn in the vessel containing

- A.  $\text{N}_2$       B.  $\text{O}_2$   
C.  $\text{N}_2$  and  $\text{O}_2$       D. Ne

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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34. Electrolysis of dilute solution of NaCl results at the anode

- A. sodium    B. hydrogen  
C. chlorine                                         D. oxygen

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

35. Second ionization potential of alkali metals are very high due to

- A. being s-block elements                      B. inert gas configurations  
C. ns<sup>1</sup> electronic configuration                D. being metals

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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36. Which ion will have maximum value of heat of hydration?

- A. Al<sup>3+</sup>     B. Cs<sup>+</sup>  
C. Ba<sup>2+</sup>    D. Mg<sup>2+</sup>

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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37. Which one can form complex?

A. Na

B. Cr

C. Li

D. K

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

38. Which one is natron?

A.  $\text{Na}_2\text{CO}_3$

B.  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$

C.  $\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$

D.  $\text{NaHCO}_3$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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39. Addition of 2% gypsum in cement

A. Triggers hydration

B. Triggers hydrolysis

C. Prevents rapid hardening

D. all of the above

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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40. Which one is least ionic in nature and decompose on heating.

- |         |         |
|---------|---------|
| A. LiOH | B. NaOH |
| C. KOH  | D. CsOH |

### Answer & Explanation

**Answer:** Option A

**Explanation:**

1. Among the halogens the rare element is

- |             |             |
|-------------|-------------|
| A. Fluorine | B. Chlorine |
| C. Astatine | D. Iodine   |

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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2. The colour of chlorine gas is

- |                  |                    |
|------------------|--------------------|
| A. pale yellow   | B. freenish yellow |
| C. reddish brown | D. grayish black   |

### Answer & Explanation

**Answer:** Option B

**Explanation:**

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---

3. Vander Waals forces are stronger in

A. F<sub>2</sub>

B. Cl<sub>2</sub>

C. Br<sub>2</sub>

D. I<sub>2</sub>

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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4. The most powerful oxidizing agent among the halogens is

A. F<sub>2</sub>

B. Cl<sub>2</sub>

C. Br<sub>2</sub>

D. I<sub>2</sub>

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

5. Which of the following statements is incorrect about fluorine

A. fluorine is restricted to -1 oxidation state

B. fluorine follows octet rule and as well as extended octet rule

- fluorine has lowest  
C. dissociation energy among the halogens      D. both b and c

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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6. The halogen which reacts spontaneously with gold (Au) to form Au<sup>+3</sup> is
- A. F<sub>2</sub>                                      B. Cl<sub>2</sub>  
C. Br<sub>2</sub>                                      D. I<sub>2</sub>

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

7. Which one of the following is the weakest acid in water
- A. HF                                      B. HCl  
C. HBr                                      D. HI

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

8. The halogen which reacts very slowly with halogen is
- A. Fluorine                                      B. Chlorine  
C. Bromine                                      D. Iodine

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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- 
9. Which of the following represents the correct electronic configuration of VII A group elements in the ground state?
- A.  $ns^2p^2$                                       B.  $ns^2p^4$   
C.  $ns^2p^5$                                       D.  $ns^2p^6$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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- 
10. The halogen having highest electron affinity is
- A. Fluorine                                      B. Chlorine  
C. Bromine                                      D. Iodine

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

11. Which is the strongest acid?

- |                             |                             |
|-----------------------------|-----------------------------|
| <b>A.</b> HClO              | <b>B.</b> HClO <sub>2</sub> |
| <b>C.</b> HClO <sub>3</sub> | <b>D.</b> HClO <sub>4</sub> |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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12. Bromine can be liberated from KBr solution by the action of

- |                           |                    |
|---------------------------|--------------------|
| <b>A.</b> Iodine solution | <b>B.</b> Chlorine |
| <b>C.</b> NaCl            | <b>D.</b> KI       |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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13. Bleaching powder is an example of

- |                       |                       |
|-----------------------|-----------------------|
| <b>A.</b> Normal salt | <b>B.</b> Double salt |
| <b>C.</b> Mixed salt  | <b>D.</b> Complex     |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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14. Consider the following reaction-  $2\text{KClO}_3 + \text{H}_2\text{C}_2\text{O}_4 + \text{H}_2\text{SO}_4 \rightarrow \text{K}_2\text{SO}_4 + 2\text{H}_2\text{O} + 2\text{CO}_2 + \text{Oxide}$  Which oxide of chlorine is produced in the above reaction?

A.  $\text{Cl}_2\text{O}$

B.  $\text{ClO}_2$

C.  $\text{Cl}_2\text{O}_6$

D.  $\text{Cl}_2\text{O}_7$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

15. Which of the following oxides of iodine is used for quantitative analysis of  $\text{CO}$ ?

A.  $\text{I}_2\text{O}_4$

B.  $\text{I}_4\text{O}_2$

C.  $\text{I}_2\text{O}_5$

D. All are equally useful

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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16. Consider the following reaction-  $3\text{Cl}_2 + 6\text{NaOH} \rightarrow \text{NaClO}_3 + 5\text{NaCl} + 3\text{H}_2\text{O}$   
This reaction is

A. Displacement reaction

B. Double displacement reaction

C. Disproportionation reaction

D. Reduction reaction

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

17. Which of the halogen has highest electronegativity?

- |                    |                    |
|--------------------|--------------------|
| <b>A.</b> Fluorine | <b>B.</b> Chlorine |
| <b>C.</b> Bromine  | <b>D.</b> Iodine   |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

18. Which of the halogen can displace other three elements?

- |                    |                    |
|--------------------|--------------------|
| <b>A.</b> Fluorine | <b>B.</b> Chlorine |
| <b>C.</b> Iodine   | <b>D.</b> Bromine  |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

19. Which of the following statements is incorrect about halogens?

- |                              |  |
|------------------------------|--|
| <b>A.</b> All are non-metals | <b>B.</b> All the halogens have electronic configuration $ns^2p^5$ |
|------------------------------|--|

- C. They have high electron affinity and ionization energy
- D. All the halogens react with noble gases to form their halides

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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20. The chemical formula of sodium hypochlorite is

- A. NaClO
- B. NaClO<sub>2</sub>
- C. NaClO<sub>3</sub>
- D. NaClO<sub>4</sub>

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

21. Fluorine can react with

- A. Xe
- B. Kr
- C. Rn
- D. All of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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22. Bleaching powder is not used for bleaching

A. Cotton

B. Costly fabrics

C. Linen

D. Paper pulp

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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23. Which of the following is the weakest reducing agent?

A. HF

B. HBr

C. HC?

D. HI

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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24. Which of the following is not use of compounds of Fluorine

A. SbF<sub>3</sub> is used for manufacture of pottery

B. Sodium fluoroacetate is a rat poison

C. Cu F<sub>2</sub> is used in ceramic industry

D. None of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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25. In which compound of Xenon the oxidation state of Xenon is + 6.

- A.  $\text{XeF}_4$     B.  $\text{XeOF}_4$   
C.  $\text{XeOF}_2$     D.  $\text{Na}_4\text{XeO}_6$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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26. Photographic plates are coated with a thin film of :

- A.  $\text{AgNO}_3$     B. AgI  
C. AgCl    D. AgBr

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

27. The anhydride of  $\text{HClO}_4$  is:

- A.  $\text{Cl}_2\text{O}$     B.  $\text{Cl}_2\text{O}_6$   
C.  $\text{ClO}_2$     D.  $\text{Cl}_2\text{O}_7$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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28. Indicate the correct statement:

- A.  $\text{Cl}_2$  is the strongest oxidizing agent      B.  $\text{I}_2$  is a volatile solid
- C.  $\text{Br}_2$  is more reactive than  $\text{Cl}_2$       D.  $\text{Cl}_2$  is insoluble in water

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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29. Which one of the following halogens is present in Teflon:

- A.  $\text{I}_2$       B.  $\text{Br}_2$
- C.  $\text{Cl}_2$       D.  $\text{F}_2$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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30. Which is the paramagnetic oxide of chlorine:

- A.  $\text{Cl}_2\text{O}_7$       B.  $\text{Cl}_2\text{O}_6$
- C.  $\text{ClO}_2$       D. all

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

1. Alkanes containing a methyl group on main chain at 2nd carbon are called
- |               |                    |
|---------------|--------------------|
| A. iso-alkane | B. normal-alkane   |
| C. neo-alkane | D. branched-alkane |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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2. When one hydrogen atom of alkane is removed then it is called
- |             |                          |
|-------------|--------------------------|
| A. alkene   | B. alkyl                 |
| C. aldehyde | D. saturated hydrocarbon |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

3. Alkanes are also known as
- |                          |                            |
|--------------------------|----------------------------|
| A. saturated hydrocarbon | B. unsaturated hydrocarbon |
| C. paraffins             | D. both a & c              |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

View Answer Workspace Report Discuss in Forum

---

4. Sabatier Senderns reaction involve \_\_\_\_\_ in presence of Ni

**A.** Aalkene & H<sub>2</sub>

**B.** alkene & O<sub>2</sub>

**C.** alkene & N<sub>2</sub>

**D.** alkyne & Cl<sub>2</sub>

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

5. Hydrogenolysis results in the formation of

**A.** alkane

**B.** alkene

**C.** alkyne

**D.** aldehydes

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

6. Clemmensens reduction infolves the reduction of

**A.** ketone

**B.** aldehyde

**C.** alkane

**D.** all of the above

### **Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

7. Removal of CO<sub>2</sub> is called

- |                          |                           |
|--------------------------|---------------------------|
| <b>A.</b> carboxylation  | <b>B.</b> decarboxylation |
| <b>C.</b> esterification | <b>D.</b> hydroxylation   |

### **Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

8. Soda lime is a mixture of

- |                                      |                                     |
|--------------------------------------|-------------------------------------|
| <b>A.</b> CaO and KOH                | <b>B.</b> CaO and NaOH              |
| <b>C.</b> NaOH and Na <sub>2</sub> O | <b>D.</b> Na <sub>2</sub> O and KOH |

### **Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

9. Molozonide is unstable and changes into ozonide on

- |                     |                     |
|---------------------|---------------------|
| <b>A.</b> reduction | <b>B.</b> oxidation |
|---------------------|---------------------|

C. hydrolysis

D. rearrangement

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

10. Dehalogenation of ethyl tetrahalide will give

A. ethene

B. ethyne

C. ethyl halide

D. all of the above are possible

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

11. R-Mg-Br is called

A. Grignard reagent

B. Metallic alkyl halide

C. Both a & b

D. Alkyl

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

12. Upto \_\_\_\_\_ C atoms alkanes are gases

A. 2

B. 3

C. 4

D. 6

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

13. Which of the following is the most reactive

A. ethane

B. ethyne

C. ethene

D. benzene

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

14. Incomplete oxidation of methane in the limited supply of air forms.

A.  $\text{CO}_2$  and  $\text{H}_2\text{O}$

B.  $\text{CH}_3\text{OH}$

C.  $\text{CO} + \text{H}_2 + \text{C}$

D.  $\text{CO} + \text{H}_2\text{O} + \text{C}$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

15. Introduction of nitro group in a molecule is called

- A. nitration  
B. halogenation  
C. sulphonation  
D. amination

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

16. Order of ease of halogenation in alkane is

- A.  $I_2 > Cl_2 > Br_2 > F_2$   
B.  $F_2 > Cl_2 > I_2 > Br_2$   
C.  $F_2 > Cl_2 > Br_2 > I_2$   
D.  $Cl_2 > F_2 > Br_2 > I_2$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

17. The gas used in manufacturing of urea fertilizer

- A.  $C_2H_6$   
B.  $C_2H_4$   
C.  $C_2H_2$   
D.  $CH_4$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

18. General formula of alkyne is

- A.  $C_nH_{2n+2}$                       B.  $C_nH_{2n-2}$   
C.  $C_nH_{2n}$                       D.  $C_nH_{2n+2}$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

19. Which of the following will be acidic

- A. propyne                      B. 1-butyne  
C. ethyne                      D. all of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

20. Removal of halogen and hydrogen atom is

- A. halogenation                      B. dehalogenation  
C. dehydrohalogenation                      D. hydrohalogenation

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

21. Alkenes are produced from dehalogenation of

- A.** dihalo alkane                      **B.** trihalo alkane
- C.** vicinal dihalo alkane              **D.** vicinal trihalo alkane

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

22. Reactivity due to pi-electrons is present in

- A.** alkane                                      **B.** alkene
- C.** alkyne                                      **D.** both b & c

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

23. In unsaturated hydro carbons  $\pi$ -electrons favour

- A.** less reactivity                              **B.** addition reactions
- C.** substitution reactions                      **D.** none

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

24. Raney nickel is prepared from \_\_\_\_\_ by treating with caustic soda

- A. Ni-Cu alloy    B. Ni-Fe alloy  
C. Ni-Al alloy    D. Ni-Mg alloy

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

[View Answer](#) [Workspace Report](#) [Discuss in Forum](#)

---

25. Which one is Chloroform

- A.  $\text{CH}_2\text{Cl}_2$     B.  $\text{CH}_3\text{Cl}$   
C.  $\text{CHCl}_3$     D.  $\text{CCl}_4$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

[View Answer](#) [Workspace Report](#) [Discuss in Forum](#)

---

26. Vinylacetylene combines with HCl to form

- A. polyacetylene    B. benzene  
C. chloroprene    D. divinyl acetylene

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

[View Answer](#) [Workspace Report](#) [Discuss in Forum](#)

---

27. ?? -dichloroethyl sulphide is commonly known as

- |                        |                        |
|------------------------|------------------------|
| <b>A.</b> laughing gas | <b>B.</b> bio-gas      |
| <b>C.</b> mustard gas  | <b>D.</b> phosgene gas |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

[View Answer](#) [Workspace Report](#) [Discuss in Forum](#)

---

28. Which is used for artificial ripening of fruit?

- |                  |                   |
|------------------|-------------------|
| <b>A.</b> ethane | <b>B.</b> ethene  |
| <b>C.</b> ethyne | <b>D.</b> methane |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

29. Preparation of vegetable ghee involves

- |                         |                         |
|-------------------------|-------------------------|
| <b>A.</b> halogenation  | <b>B.</b> hydroxylation |
| <b>C.</b> hydrogenation | <b>D.</b> hydration     |

**Answer & Explanation**

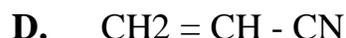
**Answer:** Option C

**Explanation:**

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---

30. Which is methyl cyanide



**Answer & Explanation**

**Answer:** Option C

**Explanation:**

1. Which one of the following is termed as benzyl alcohol?



**Answer & Explanation**

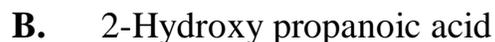
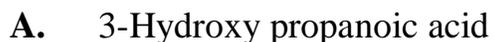
**Answer:** Option C

**Explanation:**

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---

2. Which one of the following is also known as lactic acid?



**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

3. Which one of the following is also known as tartaric acid?
- A. 2,3-dihydroxybutane-1,4-dioic acid      B. 2,3-dihydroxybutanedioic acid
- C. 2,3-dihydroxybutanoic acid      D. 2,2-dihydroxybutanoic acid

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

4. Water gas heated at 450°C and 200 atm pressure in the presence of ZnO+Cr<sub>2</sub>O<sub>3</sub> will produce
- A. methanal      B. methanol
- C. carbonic acid      D. methane

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

5. The residue obtained after the crystallization of sugar from concentrated sugar cane juice is called
- A. Mother liquor      B. Filterate
- C. Extract      D. Molasses

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

6. The formula of starch is

A.  $C_{12}H_{22}O_{11}$

B.  $C_6H_{10}O_5$

C.  $(C_6H_{10}O_5)_n$

D.  $C_6H_{12}O_6$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

7. The process of fermentation of starch involve many enzymes the sequence of enzymes used are

A. Diastase-maltase-zymase

B. Zymase-maltase-diastase

C. Maltase-diastase-zymase

D. Diastase-zymase-maltase

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

8. The rectified spirit contains

A. 12% alcohol

B. 90% alcohol

C. 95% alcohol

D. 100% alcohol

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

9.  $K_2Cr_2O_7/H_2SO_4$  generate

A. Oxygen

B. Hydrogen

C. Nascent oxygen[O]

D. Nascent hydrogen[H]

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

10. The oxidation of isopropyl alcohol will yield

A. propane

B. Propanol

C. Propanone

D. Propanoic acid

**Answer & Explanation**

**Answer:** Option C

**Explanation:**



C.  $C_6H_5OH$

D.  $H_3PO_3$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

14. The given dissociation constant ( $K_a$ ) value  $1.3 \times 10^{-10}$  is of

A. Alcohol

B. Acetic acid

C. Water

D. Phenol

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

15. Heating phenol with Zn will yield

A. Benzene

B. Benzoic acid

C. Phenoxide

D. Cyclohexane

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

16. When phenol is heated with concentrated nitric acid the product is

- A. Picric acid                      B. o-nitrophenol  
C. 1 3 5 -trinitro benzene        D. p-nitrophenol

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

17. Treating phenol with formaldehyde in the presence of dilute base forms Bakelite. The process involved is

- A. oxidation                      B. elimination  
C. condensation polymerization    D. additional polymertization

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

18. Which compound shows hydrogen bonding?

- A.  $C_2H_6$                       B.  $C_2H_5Cl$   
C.  $CH_3OCH_3$                 D.  $C_2H_5OH$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

19. Ethanol can be converted into ethanoic acid by

- A. Hydrogenation
- B. Hydration
- C. Oxidation
- D. Fermentation

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

20. Methyl alcohol is not used

- A. As a solvent
- B. As an antifreezing agent
- C. As a substitute for petrol
- D. For denaturing of ethyl alcohol

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

21. Methanol can be obtained from

- A. water gas
- B. destructive distillation of wood
- C. methane
- D. all

**Answer & Explanation**

**Answer:** Option D

**Explanation:**



**Explanation:**

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---

25. Phenol was isolated by Runge from

- |                  |                  |
|------------------|------------------|
| A. vegetable oil | B. coaltar       |
| C. wood          | D. none of these |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

26. Which one of the following compound does not have - OH group

- |                    |                  |
|--------------------|------------------|
| A. ethylene glycol | B. glycerol      |
| C. picric acid     | D. ethyl acetate |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

27. The hydrogenation of phenol in the presence of Ni and heat gives

- |                |                 |
|----------------|-----------------|
| A. cyclohexane | B. n - hexane   |
| C. 1 - hexanol | D. cyclohexanol |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

28. Ethers show functional group isomerism with

- |              |                    |
|--------------|--------------------|
| A. aldehydes | B. ketones         |
| C. alcohols  | D. carboxylic acid |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

29. Ethanol and methanol can be distinguished by a

- |                   |                 |
|-------------------|-----------------|
| A. Iodoform test  | B. Lucas test   |
| C. Benedicts test | D. Tollens test |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

30. Which one of the following alcohol has greater boiling point

- |             |                    |
|-------------|--------------------|
| A. ethanol  | B. ethylene glycol |
| C. glycerol | D. methanol        |

### Answer & Explanation

**Answer:** Option C

**Explanation:**

1. Polymers described as large molecules built up from small repeating units called
  - A. Biopolymers
  - B. Dimers
  - C. Monomers
  - D. metamers

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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- 
2. A polymer in which three different monomers combine called.
    - A. Copolymer
    - B. Terpolymer
    - C. Homopolymer
    - D. Biopolymer

### Answer & Explanation

**Answer:** Option B

**Explanation:**

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- 
3. The important monomers of acrylic resins is
    - A. Vinyl chloride
    - B. Styrene
    - C. Methylmethacrylate
    - D. Hexamethylenediamine

### Answer & Explanation

**Answer:** Option C

**Explanation:**

[View Answer](#) [Workspace Report](#) [Discuss in Forum](#)

---

4. Polyester resins are the product of the reaction of
- |  |  |
|--|--|
| <b>A.</b> Dihydric alcohol and dicarboxylic aromatic acids | <b>B.</b> Polyamines with aliphatic dicarboxylic acids |
| <b>C.</b> Styrene in the presence of catalyst              | <b>D.</b> Epichlorohydrin with diphenylol propane      |

### Answer & Explanation

**Answer:** Option A

**Explanation:**

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---

5. Industrial materials and thermal power stations are coated with
- |                            |                              |
|----------------------------|------------------------------|
| <b>A.</b> Polyester resins | <b>B.</b> Epoxy paints       |
| <b>C.</b> Polyamide resins | <b>D.</b> Polyvinyl chloride |

### Answer & Explanation

**Answer:** Option B

**Explanation:**

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---

6. Carbohydrates are polyhydroxy compounds of

- A. Glucose  
B. Glyceraldehydes  
C. Oligosaccharides  
D. Aldehydes and ketones

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

7. Common example of carbohydrates are

- A. Cellulose glycogen galactose  
B. Glyceraldehydes glucose peptone  
C. Glycerol phospho lipids collagen  
D. Legumin amylopectin albumin

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

8. Nylon is obtained by heating

- A. Acrylic acid  
B. Epichlorohydrin  
C. Vinyl chloride  
D. Adipic acid with hexamethylene diamine

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

9. Hydrolysis of an oligosaccharide in the presence of acid yields
- A. one monosaccharide unit
  - B. No monosaccharide unit
  - C. 2-9 monosaccharide unit
  - D. many monosaccharide

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

10. Amylose is
- A. Soluble in water
  - B. Insoluble in water
  - C. Soluble in alcohol
  - D. Partially soluble in alcohol

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

11. The process of polymerization was classified by
- A. Strecker
  - B. Sabatier
  - C. Runge
  - D. W. H. Carothers

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

[View Answer](#) [Workspace Report](#) [Discuss in Forum](#)

---

12. All proteins yield \_\_\_\_\_ upon complete hydrolysis.

- A. Nitrogen
- B. Amino acids
- C. Carbon and hydrogen
- D. Sulphur

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

13. Protein attached to some non protein group is called

- A. Derived protein
- B. Sample protein
- C. Proteoses
- D. Conjugated protein

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

14. Regular coiling or zigzagging of polypeptide through hydrogen bonding is its.

- A. Quantum structure
- B. Secondary structure
- C. Tertiary structure
- D. Primary structure

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

15. Ergosterol is

- |                          |                                  |
|--------------------------|----------------------------------|
| <b>A.</b> Ergocalciferol | <b>B.</b> Vitamin D <sub>2</sub> |
| <b>C.</b> Sterol         | <b>D.</b> all of the above       |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

16. Lipids are soluble in

- |                              |  |
|------------------------------|--|
| <b>A.</b> Organic solvents   | <b>B.</b> Organic and inorganic solvents           |
| <b>C.</b> Inorganic solvents | <b>D.</b> Solubility has nothing to do with lipids |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

17. Animal fats are located particularly in

- |                              |                           |
|------------------------------|---------------------------|
| <b>A.</b> Skeleton tissues   | <b>B.</b> Cardiac tissues |
| <b>C.</b> Connective tissues | <b>D.</b> Adipose tissues |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

18. Animal and vegetable fats are

- |  |  |
|--|--|
| <b>A.</b> Glycerols                                      | <b>B.</b> Fatty acids                                      |
| <b>C.</b> Triesters formed from glycerol and fatty acids | <b>D.</b> Tetraesters formed from glycerol and fatty acids |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

[View Answer](#) [Workspace Report](#) [Discuss in Forum](#)

---

19. Lipopolysaccharides are examples of

- |                           |                                |
|---------------------------|--------------------------------|
| <b>A.</b> Derived lipids  | <b>B.</b> Simple lipids        |
| <b>C.</b> Compound lipids | <b>D.</b> Not a type of lipids |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

[View Answer](#) [Workspace Report](#) [Discuss in Forum](#)

---

20. Triglycerides are easily hydrolyzed by enzymes called

- |                  |                   |
|------------------|-------------------|
| <b>A.</b> Lyases | <b>B.</b> Ligases |
|------------------|-------------------|

C. Lipases

D. Hydrolases

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

21. Saponification is the hydrolysis of fat or oil with an

A. Acid

B. Alkali

C. Enzyme and alkali

D. Enzyme and acid

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

22. Enzymes that catalyze the transfer of groups within molecule are called

A. Isomerases

B. Lyases

C. Transferases

D. Ligases

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

23. Enzymes from the same organism which catalyze same reaction but are chemically and physically distinct from each other are called

A. Oxidoreductases

B. Hydrolases

C. Isoenzymes

D. Isomerases

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

24. Rate of enzymatic reaction is directly proportional to the concentration of

A. Enzyme

B. Substrate

C. Enzyme and substrate

D. Enzyme and product

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

25. Enzyme proved useful in cancer treatment is

A. Lactic dehydrogenase

B. Alkaline phosphatase

C. L-asparaginase

D. Cellulase

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

26. Purines and pyrimidines are

**A.** Enzymes

**B.** Nitrogenous bases

**C.** Carbohydrates

**D.** Lipids

**Answer & Explanation**

**Answer:** Option **B**

**Explanation:**

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---

27. Nucleic acids were first demonstrated in

**A.** Pus cells

**B.** Sperm heads

**C.** 1872

**D.** all of the above

**Answer & Explanation**

**Answer:** Option **A**

**Explanation:**

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---

28. Nucleic acids direct the synthesis of

**A.** Glucose

**B.** Triglycerides

**C.** Proteins

**D.** All

**Answer & Explanation**

**Answer:** Option **C**

**Explanation:**

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---

29. The mechanism by which the genetic information can be duplicated is called

- A. Duplication
- B. Transcription
- C. Replication
- D. Mutation

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

30. The nitrogenous base different in RNA as compared to DNA is

- A. Cytosine
- B. Thymine
- C. Adenine
- D. Guanine

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

1. All the following variables are used to describe gases except

- A. pressure
- B. volume
- C. moles
- D. density

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

2. In the van der Waals equation  $(P + n^2a / v^2) (v - nb) = nRT$  which of the

following statement is not true?

- A.  $n^2a/v$  correct for the intermolecular forces.
- B.  $nb$  correct for the volume occupied by gas molecules.
- C. at high densities the equation reduces to the ideal gas law
- D. all of the above statements are correct.

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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---

3. Methyl alcohol is not used as

- A. a solvent
- B. an anti freezing agent
- C. a substitute for petrol
- D. for denaturing of ethyl alcohol

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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---

4. The inhaled breath of diabetics patient contain acetone. A medical student wishes to test for diabetes by asking patient to bubble their breath through a reagent.

- A. alkaline aqueous iodine
- B. aqueous bromine
- C. Fehling solution
- D. aqueous NaOH

### Answer & Explanation

**Answer:** Option A

**Explanation:**

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- 
5. Oxygen (molecular weight = 32) diffuses at a rate of  $10\text{cm}^3/\text{min}$  under the same conditions of temperature and pressure how fast will hydrogen (molecular weight = 2) diffuse?
- A.  $20\text{cm}^3/\text{min}$                       B.  $40\text{cm}^3/\text{min}$
- C.  $160\text{cm}^3/\text{min}$                       D.  $2.5\text{cm}^3/\text{min}$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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- 
6. When aqueous bromine is added to aqueous phenol a creamy white ppt is obtained. What does this reaction show?
- A. phenol is unsaturated                      B. 2-bromophenol is insoluble in water
- C. a hydroxy group makes the benzene ring more susceptible to electrophilic attack                      D. acid-base reaction

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

7. As a substance moves from a solid to a liquid all of the following changes occur except:

- |  |   |
|--|---|
| <b>A.</b> molecules become more disordered.    | <b>B.</b> K.E of the molecules decreases  |
| <b>C.</b> intermolecular forces become weaker. | <b>D.</b> molecules move more frequently. |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

8. If a graph is plotted between temperature on x-axis and volume on y-axis for 1 mole of gas then we get straight line which cuts the temperature axis at

- |                    |                    |
|--------------------|--------------------|
| <b>A.</b> 0°C      | <b>B.</b> 273.16K  |
| <b>C.</b> 273.16 K | <b>D.</b> 273.16°C |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

9. The rectified spirit is

- |                       |                        |
|-----------------------|------------------------|
| <b>A.</b> 12% alcohol | <b>B.</b> 90% alcohol  |
| <b>C.</b> 95% alcohol | <b>D.</b> 100% alcohol |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

10. Benzene is a good solvent for

- |                  |                         |
|------------------|-------------------------|
| <b>A.</b> fats   | <b>B.</b> resins        |
| <b>C.</b> iodine | <b>D.</b> all the above |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

11. Which of the following solids show anisotropy

- |                   |                             |
|-------------------|-----------------------------|
| <b>A.</b> Plastic | <b>B.</b> Glass             |
| <b>C.</b> Rubber  | <b>D.</b> None of the above |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

12. Which of the following element doesnot show allotropy

- |                    |                   |
|--------------------|-------------------|
| <b>A.</b> Carbon   | <b>B.</b> Arsenic |
| <b>C.</b> Nitrogen | <b>D.</b> Sulphur |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

13. Butyl chloride gives possible isomers.

A. 2

B. 3

C. 4

D. 5

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

14. Purines and pyrimidines are

A. Enzymes

B. Nitrogenous bases

C. Carbohydrates

D. Lipids

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

15. Metallic crystals are soluble in

A. Polar solvent

B. Non polar solvent

C. Fused metal

D. None

### **Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

16. All the transition elements show

- A.** Similar physical properties      **B.** Similar chemical properties  
**C.** Both a and b      **D.** None

### **Answer & Explanation**

**Answer:** Option C

**Explanation:**

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17. Paramagnetic behaviour of substance is measured by a balance called

- A.** Analytical balance      **B.** Guoys balance  
**C.** Electrical balance      **D.** Single beam balance

### **Answer & Explanation**

**Answer:** Option B

**Explanation:**

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18. In solids the temperature is the measure of

- A.** Average kinetic energy of molecules      **B.** Vibrational kinetic energy

- C. Translational kinetic energy      D. None of the above

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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19. Which of the following properties prove that cathode rays are material in nature

- A. they cast shadow      B. they possess momentum  
C. they are negatively charged      D. all of the above

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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20. Fruit juices and fizzy drinks such as lemonade are often sold in aluminium cans. What is the most important reason aluminium is a suitable metal?

- A. aluminium can be recycled      B. aluminium has very low density  
C. aluminium is the most abundant metal in the earth crust      D. aluminium is resistant to corrosion by organic acids.

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

31. The hardest of the following solids is

- |                    |                     |
|--------------------|---------------------|
| <b>A.</b> sodium   | <b>B.</b> diamond   |
| <b>C.</b> graphite | <b>D.</b> magnesium |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

32. Which of the following elements has greater 1st ionization energy

- |             |             |
|-------------|-------------|
| <b>A.</b> B | <b>B.</b> C |
| <b>C.</b> N | <b>D.</b> O |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

33. Which of the solid does not contain covalent bond

- |                   |                    |
|-------------------|--------------------|
| <b>A.</b> copper  | <b>B.</b> ice      |
| <b>C.</b> diamond | <b>D.</b> graphite |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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34. Which of the following molecule is polar

A.  $\text{CCl}_4$

B.  $\text{CO}_2$

C.  $\text{BF}_3$

D. none of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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35. The balanced chemical equation for the reaction which occurs when Be is added to water is

A.  $\text{Be} + 2\text{H}_2\text{O} \rightarrow \text{Be}(\text{OH})_2 + \text{H}_2$

B.  $\text{Be} + \text{H}_2\text{O} \rightarrow \text{Be}(\text{OH})_2 + \text{H}_2$

C.  $\text{Be} + \text{H}_2\text{O} \rightarrow [\text{Be}(\text{OH})_4]^{2-} + 2\text{H}_2$

D. no reaction

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

36. The number of bonds in nitrogen molecule is

A. one  $\sigma$  and one  $\pi$  bond

B. two  $\sigma$  and one  $\pi$  bond

C. one  $\sigma$  and two  $\pi$  bond

D. three  $\sigma$  bonds only

**Answer & Explanation**

**Answer:** Option C

**Explanation:**



**Answer:** Option C

**Explanation:**

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40. Which of the following points are important in connection with equilibrium constant.

A.  $K_c$  is constant at given temperature

B.  $K_c$  is unaffected by change in concentration of reactants or products

C.  $K_c$  indicates the extent of reaction but not about the rate of reaction.

D. All of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

41. A solution has  $\text{pH} = 0$  its  $\text{H}^+$  ion concentration is

A.  $1 \times 10^{-1}$

B.  $1 \times 10^{-14}$

C.  $1 \times 10^{-7}$

D. 1

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

42. Solubility of  $\text{CaF}_2$  is  $2.0 \times 10^{-4} \text{ g dm}^{-3}$  then  $K_{sp}$  of  $\text{CaF}_2$  is

**A.**  $4.0 \times 10^{-8}$

**B.**  $3.2 \times 10^{-11}$

**C.**  $2.0 \times 10^{-8}$

**D.**  $4.0 \times 10^{-12}$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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43. 1 mole of electron has mass in microgram

**A.**  $1.008 \times 10^{-3}$

**B.**  $5.5 \times 10^{-4}$

**C.**  $1.84 \times 10^{-4}$

**D.**  $1.673 \times 10^{-3}$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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44. The unit of molality is

**A.** moles  $\text{dm}^{-3}$

**B.** moles  $\text{kg}^{-1}$

**C.** gram  $\text{dm}^{-3}$

**D.** none

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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45. The use of antifreeze in the automobile radiator is an important application of

- A. constitutive property                      B. additive property  
C. colligative property                      D. intrinsic property

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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46. A solution can be both

- A. dilute and concentrated                      B. dilute and saturated  
C. saturated and unsaturated                      D. saturated and super saturated

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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47. At which electrode the reduction of the solution is occurring in Al-Ag cell

- A. A?    B. Ag  
C. Both    D. Neither

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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48. Consider the following redox reaction.  $\text{Zn} + \text{dil HNO}_3 \rightarrow \text{Zn}(\text{NO}_3)_2 + \text{N}_2\text{O} + \text{H}_2\text{O}$  The coefficient number of  $\text{HNO}_3$  in the equation is

A. 6

B. 8

C. 10

D. 4

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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49. In which of the following type of reactions energy of reactant is greater than energy of product

A. endothermic

B. exothermic

C. unpredictable

D. same

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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50. Which of the following elements react with steam to produce  $\text{H}_2$  gas.

A. Pd

B. Ni

C. Sn

D. All of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

51. Which of following metals can be displaced by all other metals from its solution

A. Ag

B. A?

C. Au

D. Cu

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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52. The unit of the rate constant (k) is same as that of rate of reaction

A. First order reaction

B. Second order reaction

C. Zero order reaction

D. Third order reaction

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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53. Which of the elements do not fall in stair case of the modern periodic table

A. Si

B. As

C. Te

D. None of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

54. Acid present in acid rain may be

- |  |                             |
|--|-----------------------------|
| <b>A.</b> H <sub>2</sub> SO <sub>4</sub> | <b>B.</b> HNO <sub>3</sub>  |
| <b>C.</b> both a and b                   | <b>D.</b> none of the above |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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55. Across short period the melting and boiling point increase upto

- |                      |                     |
|----------------------|---------------------|
| <b>A.</b> IIIA group | <b>B.</b> IVA group |
| <b>C.</b> VA group   | <b>D.</b> VIA group |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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56. Which of the following elements conduct electricity and also melts below 100°C

- |                     |                   |
|---------------------|-------------------|
| <b>A.</b> Aluminium | <b>B.</b> Sodium  |
| <b>C.</b> Carbon    | <b>D.</b> Sulphur |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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57. Which of the following is the formula of chrome red.

A.  $Pb_3O_4$

B.  $2PbCO_3 \cdot Pb(OH)_2$

C.  $PbCrO_4 \cdot Pb(OH)_2$

D.  $Pb_2O$

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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58. The compound which is added to leaded gasoline to save engine from lead oxide and lead sulphate deposits is

A. Ethylene iodide

B. Ethylene bromide

C. Ethylene chloride

D. Ethylene fluoride

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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59. Regular coiling or zigzagging of polypeptide through hydrogen bonding is its

A. Quantum structure

B. Secondary structure

C. Tertiary structure

D. Primary structure

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

1. Which of the following technique is used for the separation of insoluble particles from liquids?

A. Filtration

B. Crystallization

C. Solvent extraction

D. Chromatography

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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2. Which of the following way is used for classification of chromatography?

A. Shape

B. Phase

C. Mechanism

D. All

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

3. Fluted filter paper is used to

A. Filter hot solution

B. Avoid premature

crystallization

- C. Increase the rate of filtration      D. Decrease the area

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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4. Safe and the most reliable method of drying crystals is through

- A. Filter paper      B. Vacuum desiccators  
C. Oven      D. None of these

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

5. A substance having very high vapour pressure at its melting point on heating will show

- A. Melting      B. Sublimation  
C. Decomposition      D. Condensation

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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- 
6. A process controlled by Distributive law is
- A. Crystallization                      B. Sublimation
- C. Solvent extraction                      D. Filtration

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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- 
7. A technique of partition chromatography in which the solvent is in a pool at the bottom of container
- A. Adsorption chromatography                      B. Ascending chromatography
- C. Radial chromatography                      D. Descending chromatography

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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- 
8. Different components of a mixture have different R<sub>f</sub> values due to
- A. Polar solvent used                      B. Combination of solvents used
- C. Their different distribution coefficients in the solvent                      D. Distributive law

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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9. Branch of chemistry that deals with the complete qualitative and quantitative analysis of a substance is
- A. Stoichio chemistry                      B. Physical chemistry
- C. Analytical chemistry                    D. Quantum chemistry

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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10. Identification of the components of a sample is
- A. Quantitative analysis                    B. Qualitative analysis
- C. Stoichiometry                            D. Physical chemistry

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

11. Estimation of amounts of different components in a sample is
- A. Quantitative analysis                    B. Qualitative analysis
- C. Stochiometry                              D. Physical chemistry

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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12. The technique used to separate components of mixture in solid phase.

- |                           |                              |
|---------------------------|------------------------------|
| <b>A.</b> Crystallization | <b>B.</b> Filtration         |
| <b>C.</b> Sublimation     | <b>D.</b> Solvent extraction |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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13. The solid which is left over the filter paper as a result of filtration

- |                               |                   |
|-------------------------------|-------------------|
| <b>A.</b> Insoluble particles | <b>B.</b> residue |
| <b>C.</b> crystals            | <b>D.</b> mud     |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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14. Size of filter paper is selected according to the amount of

- |                                    |                                      |
|------------------------------------|--------------------------------------|
| <b>A.</b> solution                 | <b>B.</b> amount of insoluble solute |
| <b>C.</b> amount of soluble solute | <b>D.</b> Amount of solvent          |

**Answer & Explanation**

**Answer:** Option **B**

**Explanation:**

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15. Gooch Crucibles are made up of

- |                     |                 |
|---------------------|-----------------|
| <b>A.</b> plastic   | <b>B.</b> fibre |
| <b>C.</b> porcelain | <b>D.</b> steel |

**Answer & Explanation**

**Answer:** Option **C**

**Explanation:**

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16. Rate of filtration can be increased by applying gentle suction

- |                             |                            |
|-----------------------------|----------------------------|
| <b>A.</b> Gooch crucible    | <b>B.</b> Filter paper     |
| <b>C.</b> Sintered crucible | <b>D.</b> All of the above |

**Answer & Explanation**

**Answer:** Option **B**

**Explanation:**

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17. Sintered crucible is made up of

- |                     |                 |
|---------------------|-----------------|
| <b>A.</b> Plastic   | <b>B.</b> glass |
| <b>C.</b> porcelain | <b>D.</b> fiber |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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18. The tip of funnel should touch the wall of the breaker in order to avoid

- A. Inconsistent flow of filtration      B. splashing  
C. premature crystallization      D. all of above

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

19. Separation of a solid from its hot saturated solution by cooling is called

- A. vapourization      B. solvent extraction  
C. filtration      D. crystallization

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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20. In crystallization if the solvent is inflammable then direct heating is

- A. needed      B. avoided

- C. depends on temperature                      D. crystallization does not involve heating

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

21. Which of the following technique is simple and efficient to purify a substance

- A. Filtration    B. Sublimation  
C. Crystallization                                      D. Solvent extraction

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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22. In solvent extraction ether is used to separate products of organic synthesis from

- A. water    B. iodine  
C. hydrochloric acid                                      D. gases

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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23. 95% ethanol is called

- A. methylated spirit                      B. wood spirit  
C. rectified spirit                         D. absolute alcohol

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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24. The use of  $\text{CaCl}_2$  and  $\text{PCl}_5$  in the process of crystallization is as a

- A. oxidizing agent                         B. reducing agent  
C. drying agent                             D. colouring agent

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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25. Ratio of the amount of solute in organic and aqueous solvent is

- A. Retardation factor                      B. Distribution co-efficient  
C. Distribution in aqueous solution     D. All statements are wrong

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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26. Without suction pump filtration is

- A.** Fast process                                  **B.** Slow process  
**C.** Rapid process                               **D.** All are possible

**Answer & Explanation**

**Answer:** Option **B**

**Explanation:**

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27. Animal charcoal adsorbs the coloured

- A.** impurities                                    **B.** crystals  
**C.** solvents                                      **D.** both a & b

**Answer & Explanation**

**Answer:** Option **A**

**Explanation:**

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28. Direct conversion of solids into vapours is called

- A.** Solvent extraction                        **B.** sublimation  
**C.** crystallization                            **D.** vaporization

**Answer & Explanation**

**Answer:** Option **B**

**Explanation:**

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29. Crystallization does not involve

- |            |                 |
|------------|-----------------|
| A. heating | B. sublimation  |
| C. cooling | D. vaporization |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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30. In CCl<sub>4</sub> I<sub>2</sub> shows

- |                |                  |
|----------------|------------------|
| A. Red colour  | B. Purple colour |
| C. Blue colour | D. Yellow colour |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

31. Repeated extraction using small portions of solvents is more

- |             |              |
|-------------|--------------|
| A. Reliable | B. Efficient |
| C. Rapid    | D. slow      |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

32. Silica gel and alumina are used as

- |                        |                            |
|------------------------|----------------------------|
| <b>A.</b> Mobile phase | <b>B.</b> Stationary phase |
| <b>C.</b> Mixed phase  | <b>D.</b> Single phase     |

**Answer & Explanation**

**Answer:** Option **B**

**Explanation:**

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---

33. Shaking two immiscible liquids increases

- |                             |                             |
|-----------------------------|-----------------------------|
| <b>A.</b> Length of contact | <b>B.</b> Volume of contact |
| <b>C.</b> Area of contact   | <b>D.</b> all of above      |

**Answer & Explanation**

**Answer:** Option **C**

**Explanation:**

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---

34. The solvent or mixture of solvents used for separation of compounds is called

- |                            |                        |
|----------------------------|------------------------|
| <b>A.</b> Stationary phase | <b>B.</b> Mobile phase |
| <b>C.</b> Dynamic phase    | <b>D.</b> Static phase |

**Answer & Explanation**

**Answer:** Option **B**

**Explanation:**

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35. Which is not a sublime material

- |                      |                 |
|----------------------|-----------------|
| A. Iodine            | B. Benzoic acid |
| C. Ammonium chloride | D. Potash alum  |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

36. Sintered glass is a porous material used for

- |               |                |
|---------------|----------------|
| A. absorption | B. adsorption  |
| C. filtration | D. sublimation |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

37. Selection of filter paper depends on size of particles to be

- |                |             |
|----------------|-------------|
| A. filtered    | B. dried    |
| C. decolorized | D. decanted |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

38. The solution remaining after the formation of crystals is called

- |                         |                           |
|-------------------------|---------------------------|
| <b>A.</b> Mother liquor | <b>B.</b> Dilute solution |
| <b>C.</b> Residue       | <b>D.</b> both a & b      |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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39. Which is not related pair of term used in analytical techniques

- |                             |   |
|-----------------------------|---|
| <b>A.</b> Filtrate residue  | <b>B.</b> Sublimate sublimation           |
| <b>C.</b> Drying desiccator | <b>D.</b> Separating funnel mother liquor |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

40. The major steps involved in complete quantitative analysis are

- |             |             |
|-------------|-------------|
| <b>A.</b> 2 | <b>B.</b> 3 |
|-------------|-------------|

C. 4

D. 5

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

1. All of the following were theorized by Bohr in his description of the atom except
- |  |  |
|--|--|
| A. Angular momentum of electrons in multiples of $h/2\pi$    | B. Electrons revolve in discrete circular orbits           |
| C. Energy of each electron is directly proportional to $n^2$ | D. Electrons radiate energy continuously in a given orbit. |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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2. The letters s p d and f are used to represent which quantum numbers
- |              |              |
|--------------|--------------|
| A. Principal | B. Azimuthal |
| C. Magnetic  | D. Spin      |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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3. The magnetic quantum number (QN) has its values determined directly by the

value of

- |                          |                          |
|--------------------------|--------------------------|
| <b>A.</b> Principal (QN) | <b>B.</b> Azimuthal (QN) |
| <b>C.</b> Spin (QN)      | <b>D.</b> Both a & b     |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

4. The atomic number of an element having maximum number of unpaired electrons in p-subshell is

- |              |              |
|--------------|--------------|
| <b>A.</b> 7  | <b>B.</b> 10 |
| <b>C.</b> 12 | <b>D.</b> 16 |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

5. The maximum number of electron in a sub shell with  $l = 3$  is

- |              |              |
|--------------|--------------|
| <b>A.</b> 6  | <b>B.</b> 10 |
| <b>C.</b> 14 | <b>D.</b> 18 |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

6. Radius of the third shell of H-atom is

**A.** 5.761 A?

**B.** 4.761 A?

**C.** 6.671 A?

**D.** 3.716 A?

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

7. When an atom absorbs energy the lines in the spectrum will appear which are

**A.** Brighter

**B.** Darker

**C.** Colourless

**D.** Hard to locate

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

8. Colour of fluorescence produced by cathode rays depends upon

**A.** Temperature

**B.** Pressure

**C.** Volume

**D.** Composition of glass

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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9. Which one is not true about cathode rays?

- A.  $9.11 \times 10^{-31}$  Kg                      B. Cast shadow  
C. Heat up the platinum foil              D. Cannot ionize

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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10. Positive rays are produced

- A. By burning of gas                      B. By cooling of the gas  
C. By the bombardment of cathode rays on gas molecules              D. From anode like cathode rays produced from cathode

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

11. A fast moving neutron can eject from nitrogen

- A.  $\alpha$  rays                      B.  $\beta$  rays  
C.  $\gamma$  rays                      D. electrons

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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12. Rutherfords planet like structure was defective and unsatisfactory because

- |  |                               |
|--|-------------------------------|
| <b>A.</b> Moving e- accelerate towards the nucleus | <b>B.</b> Continuous spectrum |
| <b>C.</b> behavior of electron remain unexplained  | <b>D.</b> all                 |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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13. The relationship between energy of a photon of light and its frequency is given by

- |  |                                    |
|--|------------------------------------|
| <b>A.</b> de-Broglie dual nature of matter | <b>B.</b> Bohrs model              |
| <b>C.</b> Plancks Quantum theory           | <b>D.</b> Rutherfords atomic model |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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14. Splitting of spectral lines when atom is subjected to magnetic field is called

- A. Zeemans effect                      B. Starks effect  
C. Photo electric effect              D. Compton effect

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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15. The velocity of the photon

- A. Is independent of wavelength    B. Depends upon source  
C. Depends upon its frequency      D. Equals to the square of amplitude

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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16. Which one of the following explain the shape of orbitals

- A. Principal of quantum number    B. Azimuthal quantum number  
C. Magnetic quantum number      D. Spin quantum number

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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17. Atom cannot be divided into simple units theorized by

A. Rutherford

B. Dalton

C. Bohr

D. Schrodinger

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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18. Pressure in gas discharge tube was kept

A. 10 torr

B. 1 torr

C. 0.1 torr

D. 0.01 torr

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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19. The number of fundamental particles in an atom of the lightest isotope carbon are

A. 6

B. 12

C. 18

D. 20

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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20. Angle of deflection was studied by

- |                    |             |
|--------------------|-------------|
| A. Hitorff         | B. Stoney   |
| C. William Crookes | D. J.Perrin |

**Answer & Explanation**

**Answer:** Option D

**Explanation**

21. Increase in atomic number is observed during

- |                   |                  |
|-------------------|------------------|
| A. Alpha emission | B. Beta emission |
| C. Both a & b     | D. Radioactivity |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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22. Positive rays give flash on

- |                            |               |
|----------------------------|---------------|
| A. AgNO <sub>3</sub> plate | B. AgCl plate |
| C. ZnO                     | D. ZnS        |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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23. Free neutron changes into proton with the emission of

- A. Neutrino
- B. Electron
- C. Both a & b
- D. Meson

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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24. The value of e/m ratio of electron is

- A.  $6.02 \times 10^{23}$  C/kg
- B.  $1.7588 \times 10^{20}$  C/kg
- C.  $9.1095 \times 10^{-31}$  C/kg
- D.  $1.7588 \times 10^{11}$  C/kg

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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25. Charge of electron was measured by

- A. J.J Thomson
- B. Millikan
- C. Rutherford
- D. Perrin

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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26. Rutherford bombarded \_\_\_\_\_ particles in discovery of nucleus
- A.** Gamma-rays                                 **B.** Alpha-rays
- C.** Beta-rays                                   **D.** X-rays

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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27. Planks theory says energy is emitted
- A.** In continuous manner                   **B.** Discontinuous manner
- C.** Simultaneously                           **D.** In the form of heat

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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28. Angular momentum of an electron
- A.**  $n^2h/2\pi$    **B.**  $nh^2/2\pi$
- C.**  $nh/4\pi$    **D.**  $nh/2\pi$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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29. 2nd orbit is \_\_\_\_\_ away from nucleus of H-atom as compared to 1st orbit is

A. 2-times

B. 3-times

C. 4-times

D. 6 times

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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30. The maximum number of orbitals present in a subshell that is represented by Azimuthal quantum number = 3 will be

A. 1

B. 3

C. 5

D. 7

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

31. The correct electronic configuration of Cu is

A. [Ar]4s1

B. [Ar]4s2

C. [Ar]3d104s1

D. [Ar]3d94s2

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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32. Pfund series are produced in the spectrum of hydrogen atom

- |  |  |
|--|--|
| <b>A.</b> when electrons jump down to 2nd- orbit | <b>B.</b> when electrons jump down to 3rd- orbit |
| <b>C.</b> when electrons jump down to 4th- orbit | <b>D.</b> when electrons jump down to 5th- orbit |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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33. Atomic orbits having same energy are called

- |   |                                      |
|---|--------------------------------------|
| <b>A.</b> Degenerate orbitals             | <b>B.</b> Bonding molecular orbitals |
| <b>C.</b> Anti bonding molecular orbitals | <b>D.</b> Half filled orbitals       |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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34. Sommerfelds modification in Bohr's model is

- A. Orbit is cylindrical                      B. Orbit is elliptical
- C. Orbit is longitudinal                      D. Orbit is asymmetrical

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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35. When electrons collide with heavy metals than \_\_\_\_\_ are produced.

- A. Beta-rays                                      B. Alpha-rays
- C. X-rays    D. Gamma-rays

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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36. Plancks equation is

- A.  $E = mc^2$                                       B.  $mvr = nh/2\pi$
- C.  $E = h\nu$     D.  $\lambda = h/mv$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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37. Atom with higher atomic number produces X-rays of

- A. Shorter wavelength                      B. Larger wavelength  
C. X-ray not produced                      D. All are possible

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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38. Wavelength of electron was verified by

- A. Moseley                                      B. Davisson and Germer  
C. Einstein                                      D. Roentgen

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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39. Space around nucleus where finding probability of electrons is maximum is called

- A. Orbital                                      B. Orbit is elliptical  
C. subshell                                      D. Electron cloud

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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40. Quantum number which tells the energy of electron is

A.  $n$

B.  $l$

C.  $m$

D.  $s$

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

41. Electronic configuration of K is

A.  $[\text{Ar}]4s^2$

B.  $[\text{Ar}]4s^1$

C.  $[\text{Kr}]5s^1$

D.  $[\text{He}]2s^1$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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42. \_\_\_\_\_ can expel protons from paraffins

A. Electron

B. Positron

C. Neutron

D. None of above has such capability

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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43. Milikan used \_\_\_\_\_ in his atomizer

- |                |                 |
|----------------|-----------------|
| <b>A.</b> Milk | <b>B.</b> Honey |
| <b>C.</b> Oil  | <b>D.</b> Water |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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44. Centrifugal forces are balanced in atom by

- |                             |                           |
|-----------------------------|---------------------------|
| <b>A.</b> Attractive forces | <b>B.</b> Repulsive force |
| <b>C.</b> Electrons         | <b>D.</b> Neutrons        |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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45. Spectrum is produced due to

- |                                 |  |
|---------------------------------|--|
| <b>A.</b> Different wavelength  | <b>B.</b> Different colours            |
| <b>C.</b> Different intensities | <b>D.</b> all have little contribution |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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46. When 6d orbital is complete the entering electron goes into

- |              |              |
|--------------|--------------|
| <b>A.</b> 7f | <b>B.</b> 7s |
| <b>C.</b> 7p | <b>D.</b> 7d |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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47. When electron jump into orbit 1 then series obtained is

- |                 |                    |
|-----------------|--------------------|
| <b>A.</b> Lyman | <b>B.</b> Paschen  |
| <b>C.</b> Pfund | <b>D.</b> Brackett |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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48. Neutrons moving with an energy of 1.2 MeV are called

- |                             |                            |
|-----------------------------|----------------------------|
| <b>A.</b> Fast neutrons     | <b>B.</b> Slow neutrons    |
| <b>C.</b> Moderate neutrons | <b>D.</b> All are possible |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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49. Splitting of spectral lines when atoms are subjected to strong electric field is called

- |                         |                   |
|-------------------------|-------------------|
| A. Zeeman effect        | B. Stark effect   |
| C. Photoelectric effect | D. Compton effect |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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50. Three quantum numbers have been derived from equation of

- |                |               |
|----------------|---------------|
| A. de-Broglie  | B. Planck     |
| C. Schrodinger | D. Heisenberg |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

1. The pH of  $10^{-3}$  mol dm<sup>-3</sup> of an aqueous solution of H<sub>2</sub>SO<sub>4</sub> is

- |      |        |
|------|--------|
| A. 3 | B. 2.7 |
| C. 2 | D. 1.5 |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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2. Kc value has

- |                      |                 |
|----------------------|-----------------|
| <b>A.</b> No units   | <b>B.</b> Units |
| <b>C.</b> Both a & b | <b>D.</b> None  |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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3. If a buffer solution of higher pH than seven is to be made we use

- |                                       |   |
|---------------------------------------|---|
| <b>A.</b> Strong acid and strong base | <b>B.</b> Weak acid and strong base               |
| <b>C.</b> Weak acid and strong base   | <b>D.</b> Weak acid and its salt with strong base |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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4. Sodium benzoate and benzoic acid are mixed in equimolar ration to form buffer if pKa is 2 what will be the pH?

- |             |             |
|-------------|-------------|
| <b>A.</b> 0 | <b>B.</b> 1 |
|-------------|-------------|

C. 2

D. any one

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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5. AgCl dissolved with conc ( $2 \times 10^{-2}$ )  $K_{sp}$  will be

A.  $3.6 \times 10^{-6}$

B.  $3.6 \times 10^{-5}$

C.  $7.2 \times 10^{-6}$

D.  $4 \times 10^{-4}$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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6. In which of the following equilibria will  $K_c$  and  $K_p$  have the same value?

A.  $PCl_5 = PCl_3 + Cl_2$

B.  $N_2 + 3H_2 = 2NH_3$

C.  $2CO + O_2 = 2CO_2$

D.  $N_2 + O_2 = 2NO$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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7. Which of the following will not change the concentration of ammonia at the equilibrium ?

- A. Increase of pressure                      B. Increase of volume  
C. Addition of catalyst                      D. Decrease of temperature

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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- 
8. pH of an aqueous solution is 5.5. The hydroxyl ion conc. In the solution would be
- A.  $10^{-5.5}$                                       B.  $10^{-8.5}$   
C.  $10^{-8.5}$                                       D.  $10^{-5}$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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- 
9. For a reaction involving only gases at 25°C the equilibrium constant can be expressed in terms of molarity  $K_c$  or partial pressure  $K_p$ . Which is true about the numerical value of  $K_p$ ?
- A.  $K_c$  is generally greater than  $K_p$                       B.  $K_c$  is generally less than  $K_p$   
C.  $K_c$  is generally equal to  $K_p$                       D.  $K_c$  is equal to  $K_p$  if the total moles of reactants and products are equal

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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10. Which of following is not a base

A. KOH

B. NH<sub>3</sub>

C. PH<sub>3</sub>

D. BF<sub>3</sub>

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

11. Which set of solutes will form a buffer when dissolved in water to make 1 liter of solution?

A. 0.0002M HCl

B. 0.2 mole of NaCl with 0.2 mole of HNO<sub>3</sub>

C. 0.4 mole of CH<sub>3</sub>COOH with 0.4 mole of NaOH

D. 0.4 mole of NH<sub>3</sub> with 0.2 mole of HCl

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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12. Which one of the following aqueous solutions will be basic?

A. NaCl

B. Na<sub>2</sub>SO<sub>4</sub>

C.  $\text{Na}_2\text{CO}_3$

D.  $\text{FeCl}_3$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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13. The value of  $K_w$  in an acidic aqueous solution at 298 K is

A.  $>10^{-14}$

B.  $<10^{-14}$

C.  $10^{-1}$

D.  $10^{-1}$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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14. Reaction which proceeds in both directions is called

A. reversible

B. irreversible

C. spontaneous

D. non-spontaneous

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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15. Chemical equilibrium state is

A. dynamic state

B. static state

C. free state

D. unidirectional state

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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16. Conversion of reactant into product in unit time is called

A. rate of forward reaction

B. rate of backward reaction

C. rate constant

D. rate co-efficient

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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17. At start of reaction the concentration of reactants is

A. high

B. low

C. according to  $K_c$

D. constant

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---



- A. reaction is at start                      B. product conc. Is maximum
- C. reactant conc. Is minimum              D. reaction is completed

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

22. Catalyst used to speed up the reaction of ammonia synthesis is

- A.  $V_2O_5$     B.  $V_2O_5$  and Pt
- C. Fe    D. Pieces of Fe crystals are embedded in fused mixture of  $MgO$ ,  $Al_2O_3$  and  $SiO_2$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

23. Temperature for preparation of  $SO_3$  is

- A.  $400-500^\circ C$                                       B.  $400^\circ C$
- C.  $600^\circ C$     D.  $200^\circ C$

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

24. By the addition of base in water pH will be

- A. more than 7
- B. less than 7
- C. equal to 7
- D. no effect

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

25. Idea of pH and pOH was put forward by

- A. Gibbs
- B. Einstein
- C. Sorenson
- D. Chadwick

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

26. Negative log of molar concentration of  $H^+$  ions is called

- A. pH
- B. pOH
- C. pKa
- D. pKw

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

27.  $K_a < 10^{-3}$  means

- |                     |                     |
|---------------------|---------------------|
| A. Very strong base | B. Very weak acid   |
| C. Very strong acid | D. Very strong salt |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

28. Any substance which accepts  $H^+$  is base favours the concept

- |              |                  |
|--------------|------------------|
| A. Lowrys    | B. Lewis         |
| C. Arrhenius | D. None of these |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

29. Conjugated base of a weak acid is

- |                    |             |
|--------------------|-------------|
| A. weak            | B. strong   |
| C. moderately weak | D. unstable |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

30. When sparingly soluble salt is in equilibrium with molar concentration of its oppositely charged ion when the product is called

- |                          |                                      |
|--------------------------|--------------------------------------|
| A. common ion effect     | B. solubility product                |
| C. dissociation constant | D. dissociation constant for an acid |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

31. Solution having the property of a very little change in pH on adding a small amount of strong acid or base is called

- |                      |                     |
|----------------------|---------------------|
| A. buffer solution   | B. normal solution  |
| C. standard solution | D. neutral solution |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

32. Addition of  $\text{CH}_3\text{COOH}$  and  $\text{CH}_3\text{COONa}$  gives in water

- |                      |                    |
|----------------------|--------------------|
| A. Standard solution | B. buffer solution |
|----------------------|--------------------|

- C. acidic buffer solution                      D. both b & c

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

33. Which one of the following is a buffer solution?

- A. brine    B. blood  
C. glue    D. solution of  $\text{CuSO}_4$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

34. Solubility of any salt can be determined from

- A.  $K_a$     B.  $K_b$   
C.  $K_c$     D.  $K_{sp}$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

35. The pH of human blood is

A. 7

B. 7.35

C. 7.5

D. 7.8

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

36. By decreasing the pressure the reaction will go to that direction where

A. volume is decreased

B. volume increased

C. heat absorbed

D. no. of moles of specie decreased

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

37. Equilibrium state is achieved quickly by the addition of.

A. reactants

B. acid

C. base

D. catalyst

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

1. The rate of reaction

- A. Increases as the reaction proceeds
- B. Decreases as the reaction proceeds
- C. Remains the same as the reaction proceeds
- D. May decrease or increase as the reaction proceeds

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

2. The addition of a catalyst to the reaction system

- A. Increases the rate of forward reaction only
- B. Increases the rate of reverse reaction
- C. Increases the rate of forward but decreases the rate of backward reaction
- D. Increases the rate of forward as well as backward reaction equally

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

3. The specific rate constant of a first order reaction depends on the

- A. Time
- B. Concentration of the reactant
- C. Temperature
- D. Concentration of the product

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

4. On increasing the temperature the rate of reaction increases mainly because
- |   |   |
|---|---|
| <b>A.</b> The activation energy of the reaction increases | <b>B.</b> Concentration of the reacting molecules increases |
| <b>C.</b> Collision frequency increases                   | <b>D.</b> None of these                                     |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

5.  $\frac{d[N_2O_5]}{dt}$  represents
- |   |   |
|---|---|
| <b>A.</b> Rate of formation of $N_2O_5$ | <b>B.</b> Rate of decomposition of $N_2O_5$ |
| <b>C.</b> order of the reaction         | <b>D.</b> none                              |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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6. The value of activation energy is primarily determined by
- |                       |                               |
|-----------------------|-------------------------------|
| <b>A.</b> Temperature | <b>B.</b> Effective collision |
|-----------------------|-------------------------------|

- C. Concentration of reactants      D. Chemical nature of reactants and products

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

7. Sum of exponents of molar concentration is called

- A. Order of reaction      B. Molecularity  
C. Rate of reaction      D. Average of reaction

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

8. Spontaneous reactions are

- A. Moderate      B. Slow  
C. Fast      D. not natural

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

9. In rate expression the concentration of reactants is negative. It shows

- A. Concentration of reactant does not change
- B. Concentration of product increases
- C. Concentration of reactant decreases
- D. Concentration of reactant increases

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

10. Unit of rate of reaction is

- A. Moles  $\text{dm}^{-3} \text{sec}^{-1}$
- B. Moles  $\text{dm}^{-3}$
- C. Moles  $\text{sec}^{-1}$
- D.  $\text{Mol}^{-1} \text{dm}^3 \text{sec}^{-1}$

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

11. When a graph is plotted between  $1/T$  on X-axis and  $\log k$  on y-axis a straight line is obtained with a negative slope which has two end in

- A. I and II quadrant
- B. II and III quadrant
- C. III and IV quadrant
- D. II and IV quadrant

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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**Explanation:**

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18. Activated complex is formed due to

- |                           |                        |
|---------------------------|------------------------|
| A. Pressure               | B. Effective collision |
| C. Ineffective collisions | D. Temperature         |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

19. Energy of reactant higher than energy of product favours

- |                      |                |
|----------------------|----------------|
| A. Endothermic       | B. Exothermic  |
| C. Moderate reaction | D. No reaction |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

20. Energy required to form transition state is called

- |          |        |
|----------|--------|
| A. $E_a$ | B. P.E |
| C. $V$   | D. K.E |

**Answer & Explanation**



### **Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

24. The substances that reduces the effectiveness of a catalyst are called

- |                      |                               |
|----------------------|-------------------------------|
| <b>A.</b> Promoters  | <b>B.</b> Poisoning catalysts |
| <b>C.</b> Inhibitors | <b>D.</b> pro-catalysts       |

### **Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

25. When catalysts and reactants are in more than one phase it is

- |                                 |                                   |
|---------------------------------|-----------------------------------|
| <b>A.</b> Homogeneous catalysis | <b>B.</b> Heterogeneous catalysis |
| <b>C.</b> Catalysis             | <b>D.</b> Ea                      |

### **Answer & Explanation**

**Answer:** Option B

**Explanation:**

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26. Each catalyst has

- |                       |                             |
|-----------------------|-----------------------------|
| <b>A.</b> Specificity | <b>B.</b> Special structure |
|-----------------------|-----------------------------|

**C.** Its own Ea

**D.** all of above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

27. Biocatalytical proteins are

**A.** Enzymes

**B.** Substrate

**C.** Lipids

**D.** any of above

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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28. A catalyst can not effect

**A.** Products

**B.** Chemical equilibrium

**C.** Reactants

**D.** both a & b

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

29. An enzyme has its specificity due to

- A. Substrate
- B. Structure
- C. Temperature
- D. Pressure

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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30. Co-enzymes are

- A. Non proteineous
- B. Proteineous
- C. sugars
- D. lipids

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

31. A substance which increases the reactivity of enzyme is called

- A. Promoters
- B. Inhibitors
- C. Stimulators
- D. Non-activators

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

32. Addition of tetraethyl lead in petrol is example of

A. ve catalysis

B. ?ve catalysis

C. auto catalysis

D. anti catalysis

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

33. When a product acts as catalyst then it is called

A. Autocatalysis

B. ?ve catalysis

C. ve catalysis

D. self catalysis

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

34. End name of enzyme is

A. yl

B. ase

C. one

D. al

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

35. When the reaction completes in more than one steps rate of reaction will be determined by

A. Fast step

B. Slowest step

C. All steps

D. Molecularity of the reaction

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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36. For determining the order of reaction we use

A. Refractometric method

B. Dilatometric method

C. Optical activity method

D. Half life method

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

37. Energy of activation for backward reaction is less than forward reaction for \_\_\_\_\_ reaction

A. Endothermic

B. Exothermic

C. Moderate

D. Fast

**Answer & Explanation**

**Answer:** Option A

**Explanation:**



**Answer:** Option C

**Explanation:**

1. Boron is non-metal whereas Al is metal. It is due to
- |                 |                                    |
|-----------------|------------------------------------|
| A. Small size   | B. High nuclear charge             |
| C. Both a and b | D. No authorized justification yet |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

2. Boron in soil has been considered micronutrient for
- |                       |                            |
|-----------------------|----------------------------|
| A. Soil porosity      | B. Proper growth of plants |
| C. Alkalinity of soil | D. All                     |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

3. One of the outstanding features of boron is its ability to form
- |                                 |                       |
|---------------------------------|-----------------------|
| A. Molecular addition compounds | B. Molecular crystals |
| C. Semiconductors               | D. Ionic compounds    |

### Answer & Explanation

**Answer:** Option A

**Explanation:**

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4. Substance which is found in dried up lakes of Tibet and California is

- |                             |                      |
|-----------------------------|----------------------|
| <b>A.</b> Tincal            | <b>B.</b> Boric acid |
| <b>C.</b> Calcium carbonate | <b>D.</b> Colemanite |

### Answer & Explanation

**Answer:** Option A

**Explanation:**

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5. Borax is a white crystalline solid and it is

- |                                      |  |
|--------------------------------------|--|
| <b>A.</b> More soluble in cold water | <b>B.</b> More soluble in hot water        |
| <b>C.</b> Insoluble in water         | <b>D.</b> Soluble only in organic solvents |

### Answer & Explanation

**Answer:** Option B

**Explanation:**

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6. Which of the following does not give Borax bead test?

- |              |              |
|--------------|--------------|
| <b>A.</b> Cu | <b>B.</b> Cr |
|--------------|--------------|

C. Ni

D. Al

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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7. Special features of borate glass is that it is

A. Heat resistant

B. Low melting

C. Used to prepare chemical garden

D. Green in colour

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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8. The metal which is used in thermite process because of its activity is

A. iron

B. copper

C. aluminium

D. zinc

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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9. Aluminium oxide is



A. Al

B. Si

C. B

D. C

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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13. In network of silica ( $\text{SiO}_2$ ) each silicon atom is surrounded by \_\_\_\_\_ atoms of oxygen

A. 4

B. 2

C. 1

D. 6

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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14. Which one of the following is not a semiconductor?

A. Si

B. Ge

C. Se

D. Sn

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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15. Orthoboric acid is 2.6% soluble in water at 40°C and \_\_\_\_\_ at 107°C.

A. 26%

B. 27%

C. 37%

D. <2.6%

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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16. The process of aluminium extraction is called

A. Hall process

B. Thermite process

C. Haber process

D. Contact process

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

17. Because of its ability to combine with both oxygen and nitrogen aluminium metal is used

A. As nitrometer

B. To remove air bubbles from molten metal

C. To produce alloy

D. As insulator

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

18. Aqueous solution of borax above  $62^{\circ}\text{C}$  gives crystals of

- A.  $\text{Na}_2\text{B}_4\text{O}_7 \cdot 4\text{H}_2\text{O}$                       B.  $\text{Na}_2\text{B}_4\text{O}_7 \cdot 5\text{H}_2\text{O}$   
C.  $\text{Na}_2\text{B}_4\text{O}_7 \cdot 2\text{H}_2\text{O}$                       D.  $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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19. Silicon differ from silica by a group of

- A.  $\text{CH}_3$     B.  $\text{OH}$   
C.  $\text{OCH}_3$     D.  $\text{O}_2$

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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20. Which of the following is not a use of silicon?

- A. Lubricants    B. Hydraulic brakes  
C. Antifreeze    D. Water repellent

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

21. Boron is non metal while other elements of IIIA group are metals. This is because

- |    |                                       |    |                            |
|----|---------------------------------------|----|----------------------------|
| A. | it has small size                     | B. | it has high nuclear charge |
| C. | it forms molecular addition compounds | D. | all of the above           |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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22. CO<sub>2</sub> is gas while SiO<sub>2</sub> is solid at room temperature.

- |    |  |    |  |
|----|--|----|--|
| A. | carbon is non-metal while silicon is semi-metal                                | B. | CO <sub>2</sub> is an independent molecule while SiO <sub>2</sub> has network covalent structure |
| C. | CO <sub>2</sub> forms multiple bond while silicon does not form multiple bonds | D. | Silicon has all sigma bonds  |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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23. The coloured glassy mass in borax bead test is due to the formation of

A. metal borate

B. metal meta borate

C. metal boride

D. metal silicate

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

24. Identify the correct statement regarding CO

A. it combines with H<sub>2</sub>O to form carbonic acid

B. it reacts with red blood cells of haemoglobin

C. it is powerful oxidizing agent

D. it is used to prepare aerated drinks

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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25. The chief ore of Al is:

A. Na<sub>3</sub>AlF<sub>6</sub>

B. Al<sub>2</sub>O<sub>3</sub>·2H<sub>2</sub>O

C. Al<sub>2</sub>O<sub>3</sub>·H<sub>2</sub>O

D. Al<sub>2</sub>O<sub>3</sub>·3H<sub>2</sub>O

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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26. If temperature of gallium arsenide is increased then its conductivity will

- A. decrease
- B. increase
- C. remains constant
- D. first decreases then increases

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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27. Boric acid cannot be used

- A. As antiseptic in medicine
- B. For washing eyes
- C. In soda bottles
- D. For enamel and glazes

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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28. Which of the following will decompose to produce litharge

- A.  $Pb_2O$
- B.  $Pb_3O_4$
- C.  $PbO_2$
- D. All of the above

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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29. Which element can form tripositive ion?

- |                     |                     |
|---------------------|---------------------|
| <b>A.</b> Beryllium | <b>B.</b> Carbon    |
| <b>C.</b> Silicon   | <b>D.</b> Aluminium |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

30. Which of the following is metasilicic acid?

- |                                    |                                    |
|------------------------------------|------------------------------------|
| <b>A.</b> $\text{H}_2\text{SnO}_3$ | <b>B.</b> $\text{H}_2\text{SiO}_3$ |
| <b>C.</b> $\text{H}_3\text{AsO}_4$ | <b>D.</b> $\text{H}_3\text{SbO}_4$ |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

1. Coordination number of the transition element in  $[\text{PtClNO}_2(\text{NH}_3)_4]^{2+}$  is

- |             |             |
|-------------|-------------|
| <b>A.</b> 2 | <b>B.</b> 6 |
| <b>C.</b> 4 | <b>D.</b> 8 |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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2.  $K_2(Cu(CN)_4)$  which one is correct

- |   |   |
|---|---|
| <b>A.</b> Potassium tetra cyano cupperate | <b>B.</b> Co-ordination number is 2                 |
| <b>C.</b> Ligand is positively charged    | <b>D.</b> Central atom is present in avionic sphere |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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3. The oxidation number of central metal atom in  $[Ni(CO)_4]$  is

- |             |             |
|-------------|-------------|
| <b>A.</b> 0 | <b>B.</b> 2 |
| <b>C.</b> 4 | <b>D.</b> 6 |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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4. Group VIB of transition elements contains

- |                    |                    |
|--------------------|--------------------|
| <b>A.</b> Zn Cd Hg | <b>B.</b> Fe Ru Os |
| <b>C.</b> Cr Mo W  | <b>D.</b> Mn Te Re |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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5. The elements in which d or f orbitals are in the process of completion are
- |                                       |                                     |
|---------------------------------------|-------------------------------------|
| <b>A.</b> outer transition elements   | <b>B.</b> inner transition elements |
| <b>C.</b> typical transition elements | <b>D.</b> transition elements       |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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6. The location of transition elements is in between
- |                                   |                                  |
|-----------------------------------|----------------------------------|
| <b>A.</b> lanthanides & actinides | <b>B.</b> s and p block elements |
| <b>C.</b> chalcogens and halogens | <b>D.</b> d and f block elements |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

7. The melting points and boiling points upto middle of 3d- series
- |                       |                            |
|-----------------------|----------------------------|
| <b>A.</b> increases   | <b>B.</b> decreases        |
| <b>C.</b> remain same | <b>D.</b> no regular trend |

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---

8. Pure metal
- |                                   |                           |
|-----------------------------------|---------------------------|
| <b>A.</b> corrode slowly          | <b>B.</b> corrode rapidly |
| <b>C.</b> does not corrode easily | <b>D.</b> none of these   |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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- 
9. Compounds attracted by applied strong magnetic field are called
- |                          |                         |
|--------------------------|-------------------------|
| <b>A.</b> diamagnetic    | <b>B.</b> paramagnetic  |
| <b>C.</b> good conductor | <b>D.</b> ferromagnetic |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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- 
10. The correct electronic configuration of Cr is
- |   |  |
|---|--|
| <b>A.</b> [Ar]4s <sup>2</sup> 3d <sup>4</sup> | <b>B.</b> [Ar] 4s <sup>2</sup> 3d <sup>4</sup> |
| <b>C.</b> [Ar]4s <sup>0</sup> 3d <sup>5</sup> | <b>D.</b> [Ar]4s <sup>1</sup> 3d <sup>5</sup>  |

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

11. The oxidation state of transition elements is usually







### Answer & Explanation

**Answer:** Option C

### Explanation

21. Geometry of the complex compounds usually depends upon
- A. type of ligands
  - B. types of hybridization in the elements of ligands
  - C. hybridization of central metal
  - D. All of above

### Answer & Explanation

**Answer:** Option C

### Explanation:

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- 
22. When the central atom of coordination compound is  $sp^3d^2$  hybridization the expected geometry will be
- A. tetrahedral
  - B. square planar
  - C. trigonal bipyramidal
  - D. octahedral

### Answer & Explanation

**Answer:** Option D

### Explanation:

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- 
23. In pig iron the concentration of C-atom is
- A. 0.12 --- 0.25%
  - B. 2.5 --- 4.5%

C. 2.0 --- 4.0%

D. 0.25 --- 2.5%

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

24. In the production of wrought iron Mg Si and P are removed in the form of

A. oxides

B. silicates

C. slag

D. carbonates

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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25. With impurities like P and S the open hearth furnace is lined with.

A. SiO<sub>2</sub>

B. Fe<sub>2</sub>O<sub>3</sub>

C. FeO

D. CaO MgO

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

26. The oxidation number in [MnO<sub>4</sub>]<sup>-2</sup>

A. 7

B. ?7

C. 6

D. ?6

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

27. Which is sold as fertilizer

A.  $\text{CaSiO}_3$

B.  $\text{Na}_2\text{SiO}_3$

C.  $\text{Ca}_3(\text{PO}_4)_2$

D.  $\text{MnSiO}_3$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

28. Any process of chemical decay of metals due to the action of surrounding medium is called

A. activation

B. enameling

C. corrosion

D. coating

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

[View Answer](#) [Workspace Report](#) [Discuss in Forum](#)

---

29. When an active metal like Al comes in contact with less active element like Cu then it produces

- A. dry cell                                      B. galvanic cell  
C. electrolytic cell                            D. a and b

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

30. Which of the following is typical transition metal?

- A. Sc    B. Y  
C. Cd    D. Co

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

1. The molecular formula of toluene is

- A. C<sub>7</sub>H<sub>7</sub>                                      B. C<sub>7</sub>H<sub>8</sub>  
C. C<sub>8</sub>H<sub>8</sub>                                      D. C<sub>8</sub>H<sub>7</sub>

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

2. In benzene sulphonic acid the sulphonic group is attached with benzene ring through

A. Hydrogen

B. Oxygen

C. Sulphur

D.  $\text{-OH}$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

3. Phenanthrene is a fused polycyclic compound contains \_\_\_\_\_ benzene rings

A. Two

B. Three

C. Four

D. Five

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

4. Aniline is a derivative of benzene which contains

A. Imino group

B. Amino group

C. Amide group

D. Nitro group

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

5. How many  $\pi$  electrons are there in benzene to form delocalized electronic cloud

- A.** 3    **B.** 4  
**C.** 6    **D.** 8

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

6. Nitration of chlorobenzene gives

- A.** o - chloronitrobenzene                      **B.** p - chloronitrobenzene  
**C.** m - chloronitrobenzene                      **D.** a & b

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

7. When two or more different substituents are attached with a benzene ring the number 1 position in the ring is given to a high priority group. Which one of the following groups has highest - priority?

- A.**  $-\text{NH}_2$     **B.**  $-\text{CHO}$   
**C.**  $-\text{COOH}$     **D.**  $-\text{CN}$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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8. When benzene is substituted by halogens only which one of the following halogens is given the number one position in the ring while writing the name of compound?

A. Bromine

B. Chlorine

C. Fluorine

D. Iodine

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

9. Which one of the following is not a meta directing group?

A.  $-\text{CN}$

B.  $-\text{OH}$

C.  $-\text{COOH}$

D.  $-\text{CHO}$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

10. Which pair of groups contains both ortho & para directing groups

A.  $-\text{OH}$   $-\text{RCO}$

B.  $-\text{NR}_3$   $-\text{CN}$

C.  $\text{?OCH}_3 \text{ ?CHO}$

D.  $\text{?N (CH}_3)_2 \text{ -NH}_2$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

11. Michael Faraday discovered benzene in the gas which was produced by destructive distillation of vegetable oil that is done in

A. The presence of Oxygen

B. The presence of Hydrogen

C. The absence of Oxygen

D. The presence of excessive Oxygen

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

12. By which method the molecular mass of benzene was determined as 78.108?

A. Specific gravity method

B. Vapour density method

C. X-ray diffraction method

D. Distillation method

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

13. How many moles of  $\text{H}_2$  are added up when benzene is heated with hydrogen in the presence of platinum?

A. Two

B. Three

C. Four

D. Six

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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14. Chlorination of toluene in the presence of sublight produces

A. Benzyl chloride

B. o - chlorotoluene

C. p - chlorotoluene

D. benzoic acid

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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15. The heat of hydrogenation of cyclohexene is

A.  $-239 \text{ kJ mol}^{-1}$

B.  $-208 \text{ kJ mol}^{-1}$

C.  $-119.5 \text{ kJ/mol}$

D.  $-119.5 \text{ kcal/mol}$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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16. The resonance energy of benzene is

- A. 150.5 kJ/mol
- B. 250.5 kJ/mol
- C. 150.5 Cal/mol
- D. 250.5 Cal/mol

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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17. What catalyst is employed when benzene is prepared from acetylene at 70°C?

- A.  $\text{Cr}_2\text{O}_3 + \text{Al}_2\text{O}_3 + \text{SiO}_2$
- B. Raney nickel
- C. Organo-nickel
- D. Ni 250 - 300°C

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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18. Mixture of catalysts  $\text{Cr}_2\text{O}_3 + \text{Al}_2\text{O}_3 + \text{SiO}_2$  at 500°C are used when benzene is prepared from

- A. acetylene
- B. N-hexane
- C. Benzene sulphonic acid
- D. Sodium benzoate

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

19. Which one of the following methods will not give benzene?

- |  |   |
|--|---|
| <b>A.</b> Heating sod. Salt of Benzoic acid with soda lime | <b>B.</b> Distilling phenol with Zn dust                                |
| <b>C.</b> Chlorobenzene with NaOH at 360°C & 150atm.       | <b>D.</b> Hydrolysis of benzene sulphonic acid with super heated steam. |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

20. Which is fused cyclic aromatic compound

- |                          |                            |
|--------------------------|----------------------------|
| <b>A.</b> diphenyl amine | <b>B.</b> diphenyl methane |
| <b>C.</b> naphthalene    | <b>D.</b> biphenyl         |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

21. In Friedel Craft Alkylation  $AlCl_3$  is used to generate

- |                               |                             |
|-------------------------------|-----------------------------|
| <b>A.</b> Strong nucleophile  | <b>B.</b> Weak nucleophile  |
| <b>C.</b> Strong electrophile | <b>D.</b> Weak electrophile |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

22. Acetophenone is a

- |                    |                  |
|--------------------|------------------|
| <b>A.</b> Ether    | <b>B.</b> Ketone |
| <b>C.</b> Aldehyde | <b>D.</b> Ester  |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

23. Reacting bromine with benzene in the presence of sunlight will result in

- |   |                                 |
|---|---------------------------------|
| <b>A.</b> The rupturing of benzene ring | <b>B.</b> Substitution reaction |
| <b>C.</b> Addition reaction             | <b>D.</b> No-reaction           |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

24. Benzene does not undergo

- |                                    |                               |
|------------------------------------|-------------------------------|
| <b>A.</b> Substitution reaction    | <b>B.</b> Addition reaction   |
| <b>C.</b> Polymerization reactions | <b>D.</b> Oxidation reactions |

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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---

25. During sulphonation of benzene  $\text{H}_2\text{SO}_4$  generates the electrophile

- |                     |                  |
|---------------------|------------------|
| A. $\text{HSO}_4^-$ | B. $\text{SO}_2$ |
| C. $\text{SO}_3$    | D. $\text{H}^+$  |

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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---

26. Nitronium ion is

- |                    |                    |
|--------------------|--------------------|
| A. $\text{NO}_3$   | B. $\text{NO}$     |
| C. $\text{NO}_2^-$ | D. $\text{NO}_2^+$ |

### Answer & Explanation

**Answer:** Option D

**Explanation:**

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27. Which compound will readily undergo sulphonation?

- |            |                  |
|------------|------------------|
| A. Benzene | B. Nitro benzene |
|------------|------------------|

C. Toluene

D. Chlorobenzene

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

28. Benzene is heated in air with  $V_2O_5$  at  $450^\circ C$  it undergoes

A. Substitution reaction

B. Addition reaction

C. Elimination reaction

D. Oxidation reaction

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

29. Which one of the following statement is not correct about benzene?

A. On hydrogenation 208 KJ/mole is liberated

B. C-H bond length in benzene is 1.09 Å

C. Molecular mass of benzene is 78.108

D. Resonance energy of benzene is 150.5 K Cal/mole

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

30. The preparation of benzene from acetylene can also be said as

- A. Oxidation
- B. Polymerization
- C. Dehydration
- D. Condensation

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

31. What is required other than anhydrous  $\text{AlCl}_3$  when toluene is prepared by Friedel craft reaction?

- A.  $\text{C}_6\text{H}_6$
- B.  $\text{C}_6\text{H}_6 + \text{CH}_3\text{Cl}$
- C.  $\text{C}_6\text{H}_5\text{C}_2\text{H}_5$
- D.  $\text{C}_6\text{H}_5\text{Cl}$  &  $\text{CH}_3\text{Cl}$

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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32. Replacement of hydrogen of benzene by alkyl group in the presence of alkyl halide & aluminum chloride is known as

- A. Dows process
- B. Friedel & Craft acylation
- C. Friedel & Craft alkylation
- D. Clemmenson reduction

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

33. Which one of the following radical is called benzyl radical?

A.  $C_6H_5?$

B.  $C_6H_5?C$

C.  $C_6H_5?CH-$

D.  $C_6H_5?CH_2-$

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

34. Which compound form benzoic acid on oxidation with acidified  $KMnO_4$  or  $K_2Cr_2O_7$

A. Toluene

B. Ethyl benzene

C. n-propyl benzene

D. All

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

35. Ozonolysis of benzene produces

A. Glycol

B. Glyoxal

C. Vicinal diol

D. Both b & c

**Answer & Explanation**

**Answer:** Option B

**Explanation:**



1. Which of the following substance produce acetaldehyde on dry distillation?

A.  $(\text{CH}_3\text{COO})_2\text{Ca}$

B.  $(\text{HCOO})_2\text{Ca}$

C. both (a) and (b)

D. none

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

2. Which of the following will have the highest boiling point?

A. methanal

B. ethanal

C. propanal

D. hexanone

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

3. Which of the following reaction is not shown by ketones?

A. reaction with HCN

B. reaction with  $\text{NaHSO}_3$

C. reaction with 2,4-dinitrophenyl hydrazine

D. reaction with Fehling solution

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

4. The carbon atom of carbonyl group is
- |                      |                       |
|----------------------|-----------------------|
| A. $sp$ hybridized   | B. $sp^2$ hybridized  |
| C. $sp^3$ hybridized | D. $dsp^2$ hybridized |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

5. Which of the following substances does not give iodoform test?
- |                   |                  |
|-------------------|------------------|
| A. acetaldehyde   | B. ethyl alcohol |
| C. methyl alcohol | D. acetone       |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

6. Formalin is \_\_\_\_\_ % solution of formaldehyde in water
- |        |        |
|--------|--------|
| A. 10% | B. 20% |
| C. 40% | D. 60% |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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---

7. Which of the following aldehydes shows rapid reaction with sodium nitroprusside?

A. formaldehyde

B. acetaldehyde

C. benzaldehyde

D. acetone

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

8. Acetone reacts with HCN to form a cyanohydrin. It is an example of

A. electrophilic addition

B. electrophilic substitution

C. nucleophilic addition

D. nucleophilic substitution

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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9. Which of the following compounds will react with Tollens reagent?

A.  $\text{CH}_3\text{-CHO}$

B.  $\text{CH}_3\text{-CH-CH}_3$

C.  $\text{CH}_3\text{-COOH}$

D.  $\text{CH}_3\text{-CO-CH}_2\text{-CH}_3$

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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10. Which of the following reactions may be associated with aldehyde and ketone?

A. nucleophile addition

B. polymerization

C. oxidation

D. all of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

11. Cannizzaros reaction is not given by

A. formaldehyde

B. acetaldehyde

C. benzaldehyde

D. trimethyl acetaldehyde

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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---

12. Which of the following reagents will react with both aldehydes and ketones?

A. Grignard reagent

B. Tollens reagent

C. Fehlings reagent

D. Benedicts reagent

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

13. Ketones are comparatively less reactive than aldehydes. It is due to

A. alkyl groups are electron donating

B. steric hindrance

C. both (a) and (b)

D. none

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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14. Which of the following do not give aldol condensation reactions?

A. formaldehyde

B. acetaldehyde

C. dimethyl ketone

D. propionaldehyde

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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---

15. Which of the following is not a use of formaldehyde?

- A. in silvery mirror                      B. in making medicine urotropine
- C. in making throat lozenges            D. in making acetic acid

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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16. Formaldehyde and lactose are combined to produce throat lozenges named as

- A. formamint                                B. lactomint
- C. aldomint                                 D. formalactose

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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17. Which of the following is not a use of acetaldehyde?

- A. formation of phenolic resins        B. formation of mirror
- C. antiseptic inhalant                    D. formation of throat lozenges

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

18. Formula of haloform is

A. HCOX

B. CX<sub>4</sub>

C. CHX<sub>3</sub>

D. CH<sub>3</sub>X

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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19. Formaldehyde condenses with phenol in the presence of dilute H<sub>2</sub>SO<sub>4</sub> to yield

A. Nylon 66

B. urotropine

C. Aniline formaldehyde plastic

D. Bakelite

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

20. Formalin consists of mixture of formaldehyde methyl alcohol and water.

Percentage of water in it is

A. 60%

B. 50%

C. 52%

D. 8%

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

21. Which of the following will not give addition reaction with  $\text{NaHSO}_3$

A.  $\text{HCHO}$

B.  $\text{CH}_3\text{CHO}$

C.  $\text{CH}_3\text{-CH}_2\text{-CHO}$

D. None of the above

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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22. On heating aldehydes with Fehlings solution we get a precipitate whose colour is

A. pink

B. black

C. yellow

D. brick red

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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---

23. Which of the following compounds has the empirical formula  $\text{CH}_2\text{O}$  and reacts with sodium hydroxide?

A. carbonic acid

B. ethanol

C. acetic acid

D. methanoic acid

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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24. Aldehyde and ketone have same general formula for homologous series

- A.  $C_nH_{2n}O_{2n}$                                       B.  $C_nH_{2n}$   
C.  $C_nH_{2n}O$                                         D.  $C_nH_{2n}O_{n+1}$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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25. Oxidation of primary alcohol gives

- A. ketone    B. Aldehyde  
C. Alkene then - COOH                            D. Ester

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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26. Ethanal is prepared industrially by air oxidation of ethylene using palladium chloride as catalyst and \_\_\_\_\_ as promoter

- A.  $PdCl_2$     B.  $Cu_2Cl_2$   
C.  $CuCl_2$     D.  $PbCl_2$

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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27. Nucleophilic addition reactions are catalysed

- |                        |                |
|------------------------|----------------|
| <b>A.</b> Acid         | <b>B.</b> Base |
| <b>C.</b> Both a and b | <b>D.</b> None |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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28. Acetaldehyde cyanohydrin on acid hydrolysis yields

- |                         |                          |
|-------------------------|--------------------------|
| <b>A.</b> Tartaric acid | <b>B.</b> Propanoic acid |
| <b>C.</b> Lactic acid   | <b>D.</b> Valeric acid   |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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29. Acetal on acid hydrolysis generates

- |                      |                             |
|----------------------|-----------------------------|
| <b>A.</b> Alcohol    | <b>B.</b> Ketone            |
| <b>C.</b> Both a & b | <b>D.</b> None of the above |

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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30. Which one exhibits aldol condensation

- |                             |                                     |
|-----------------------------|-------------------------------------|
| A. $\text{HCHO}$            | B. $\text{C}_6\text{H}_5\text{CHO}$ |
| C. $\text{Cl}_3\text{CCHO}$ | D. $\text{CH}_3\text{COCH}_3$       |

### Answer & Explanation

**Answer:** Option D

**Explanation:**

31. For aldol condensation the conditions necessary

- |                 |                |
|-----------------|----------------|
| A. $\alpha$ -C  | B. $\alpha$ -H |
| C. Basic medium | D. All         |

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32. Aldehydes are reduced to

- |                             |                             |
|-----------------------------|-----------------------------|
| A. $\text{P}^\circ$ alcohol | B. $\text{S}^\circ$ alcohol |
| C. $\text{T}^\circ$ alcohol | D. Not possible             |

### Answer & Explanation

**Answer:** Option A

**Explanation:**



**Explanation:**

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36. In base catalyzed reaction of carbonyl compound the catalyst

- |   |  |
|---|--|
| <b>A.</b> increases the nucleophilic character of reagent | <b>B.</b> increases electrophilic character of carbonyl compound |
| <b>C.</b> acidic character of reagent                     | <b>D.</b> both a and b   |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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37. Cannizaros reaction takes place through the transfer of \_\_\_\_\_ from complex anion.

- |                        |                         |
|------------------------|-------------------------|
| <b>A.</b> hydrogen ion | <b>B.</b> hydride ion   |
| <b>C.</b> oxide ion    | <b>D.</b> methoxide ion |

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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38. Iodoform test can be used to distinguish between

- |                                      |                                     |
|--------------------------------------|-------------------------------------|
| <b>A.</b> ethanol and methanol       | <b>B.</b> acetaldehyde and methanal |
| <b>C.</b> acetone and diethyl ketone | <b>D.</b> all of the above          |

### Answer & Explanation

**Answer:** Option D

**Explanation:**

1. The fertility of the soil is improved by
- A. Rotation of the crops
  - B. Adding lime to the acid salts
  - C. Adding manure and growing legumes
  - D. All

### Answer & Explanation

**Answer:** Option D

**Explanation:**

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- 
2. Which of the following is incorrect statement about nitrogen importance?
- A. It enhances plant growth
  - B. It is involved in the synthesis of protein and nucleic acids
  - C. it accelerates fruits and flowers growth
  - D. It is involved in the chlorophyll synthesis

### Answer & Explanation

**Answer:** Option C

**Explanation:**

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- 
3. The fertilizers which provide single nutrient from NPK are called \_\_\_\_\_ fertilizer.





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9. DAP (Diammonium hydrogen phosphate) contains \_\_\_\_\_ plant nutrients.

A. 60%

B. 65%

C. 70%

D. 75%

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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10. Which of the following potassium fertilizers are more useful for horticultural crops tobacco & potatoes?

A. KCl

B. KNO<sub>3</sub>

C. K<sub>2</sub>SO<sub>4</sub>

D. KMnO<sub>4</sub>

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

11. Calcareous material includes

A. lime stone

B. marble

C. chalk

D. all of the above

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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12. Argillaceous material does not include

- A. vlay
- B. marine shells
- C. slate
- D. blast furnace slag

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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13. Which of the following processes is used for the synthesis of cement?

- A. dry process
- B. wet process
- C. both
- D. none

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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14. Phosphorus helps in the growth of

- A. root
- B. leave
- C. stem
- D. seed

**Answer & Explanation**

**Answer:** Option D



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18. Which one of the following statement is correct for urea?

- A. it is a synthetic fertilizer                      B. it is a natural fertilizer
- C. it provides micronutrients to the plants                      D. it is an inorganic water soluble compound

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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19. The percentage of nitrogen in urea is

- A. 36%    B. 46%
- C. 56%    D. 66%

**Answer & Explanation**

**Answer:** Option B

**Explanation:**

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20. Which one of the following is an inorganic fertilizer?

- A. manure    B. urea
- C. ammonium nitrate    D. All

**Answer & Explanation**

**Answer:** Option C



**Answer:** Option B

**Explanation:**

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24. What is clinker?

- |  |   |
|--|---|
| <b>A.</b> roasted calcareous material                  | <b>B.</b> roasted argillaceous material |
| <b>C.</b> roasted calcareous and argillaceous material | <b>D.</b> roasted gypsum                |

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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25. Cement is a mixture of so many compounds roasted in rotary kiln. Which substances has greater percentage?

- |   |                                      |
|---|--------------------------------------|
| <b>A.</b> Lime (CaO)                                | <b>B.</b> Silica (SiO <sub>2</sub> ) |
| <b>C.</b> Alumina (Al <sub>2</sub> O <sub>3</sub> ) | <b>D.</b> Magnesia (MgO)             |

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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26. Which one of the following raw material is not present in the cement?

- |                      |                  |
|----------------------|------------------|
| <b>A.</b> lime stone | <b>B.</b> gypsum |
|----------------------|------------------|

C.  $\text{KNO}_3$

D. iron oxide

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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27. Which sequence of steps is correct for the manufacture of cement?

A. crushing heating mixing grinding

B. crushing mixing heating grinding and mixing

C. crushing grinding mixing heating

D. mixing heating grinding crushing

**Answer & Explanation**

**Answer:** Option C

**Explanation:**

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28. The sequence of zones in the rotary kiln are as

A. dry zone burning zone decomposition zone cooling zone

B. cooling zone burning zone decomposition zone dry zone

C. burning zone cooling zone decomposition zone

D. dry zone decomposition zone burning zone cooling zone

**Answer & Explanation**

**Answer:** Option D

**Explanation:**

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29. The composition of mixture of clay and lime stone in the raw for cement material is

- A.** 75% lime stone and 25% clay      **B.** 25% lime stone and 75% clay  
**C.** 15% lime stone and 55% clay      **D.** 55% lime stone and 15% clay

**Answer & Explanation**

**Answer:** Option A

**Explanation:**

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30. The important function of burning zone in the rotary kiln is

- A.** to dry the moisture of slurry      **B.** to decompose lime stone to unslaked lime  
**C.** combination of different oxides like CaO SiO<sub>2</sub> Fe<sub>2</sub>O<sub>3</sub> and Al<sub>2</sub>O<sub>3</sub>      **D.** to reduce the impurities

**Answer & Explanation**

**Answer:** Option C

**Explanation:**