



CHEMISTRY

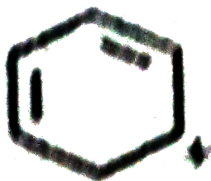
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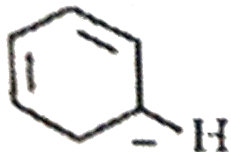
Chemistry

1. Which of the following is aromatic ?

A.



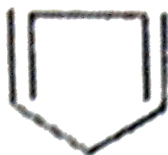
B.



C.



D.

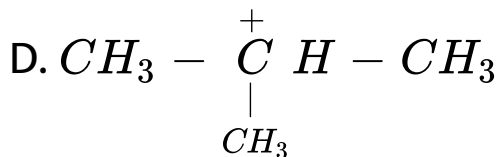
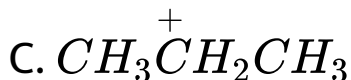
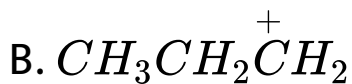


Answer: B



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2. Which of the following is most stable carbocation ?

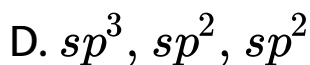
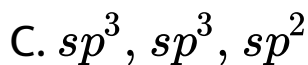
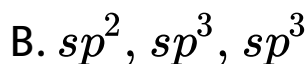
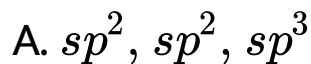


Answer: D



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3. Hybridisation in CH_3 , $\overset{+}{C}H_3$ and $\overset{-}{C}H_3$ are respectively

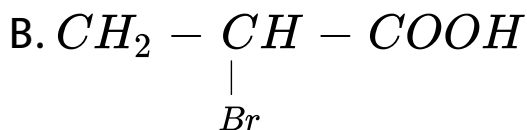
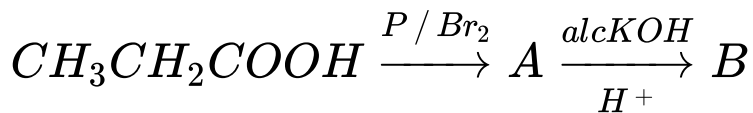


Answer: A



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4. In the following reaction order , B is



Answer: A



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5. Which of the following arrangement is possible ?

$$\begin{array}{cccc} n & l & m & s \\ \text{A.} & 5 & 2 & 2 + \frac{1}{2} \end{array}$$

$$\begin{array}{cccc} n & l & m & s \\ \text{B.} & 2 & 2 & 0 - \frac{1}{2} \end{array}$$

$$\begin{array}{cccc} n & l & m & s \\ \text{C.} & 3 & -2 & 1 + \frac{1}{2} \end{array}$$

$$\begin{array}{cccc} n & l & m & s \\ \text{D.} & 0 & 0 & 1 + \frac{1}{2} \end{array}$$

Answer: A



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6. Strongest acid among the following is

A. acetic acid

B. FCH_2COOH

C. $F_2CHCOOH$

D. F_2CCOOH

Answer: D



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7. Strongest Bronsted base is

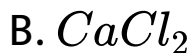
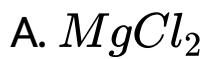


Answer: A



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8. Which of the following has highest hydration energy ?



Answer: A



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9. In which of the following $p\pi - d\pi$ bonding is possible ?



Answer: B



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10. Which of the following is always feasible ?

A. $\Delta H = T\Delta S$

B.

$$\Delta H(+ve), T\Delta S(-ve) \text{ and } \Delta H > T\Delta S$$

C.

$$\Delta H(-ve), T\Delta S(+ve) \text{ and } \Delta H < T\Delta S$$

D.

$$\Delta H(-ve), T\Delta S(-ve) \text{ and } \Delta H < T\Delta S$$

Answer: C

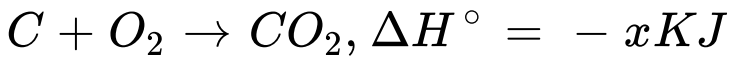


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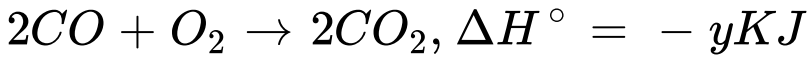
11.

Given

that



and



The

enthalpy of formation of carbon monoxide will be

A. $b-2a$

B. $\frac{2a - b}{2}$

C. $\frac{b - 2a}{2}$

D. $2a-b$

Answer: C

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12. Which of the following hydrogen halide is most basic ?

A. HF

B. HCl

C. HBr

D. HI

Answer: A

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13. Which of the following is soluble in water ?

A. Be

B. Sr

C. Mg

D. Ba

Answer: D



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14. When the temperature of reactions will increase then the effect on pH value will

A. increase

B. decrease

C. first increases then decrease

D. remains same

Answer: D



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15. Which one of the following is hardest compound of boron ?

A. magnesium boride

B. aluminium boride

C. boron nitride

D. boron carbide

Answer: D



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16. Which of the following has highest second ionization energy ?

A. Ni

B. V

C. Cr

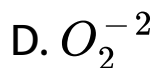
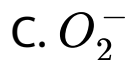
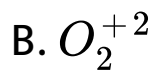
D. Mn

Answer: C



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17. Smallest intermolecular distance is found in



Answer: B



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18. The pH of aqueous solution of ammonium formate is

(pK_a of $\text{HCOOH} = 3.7$ and $\text{NH}_3 = 4.8$)

A. 7

B. 6

C. 6.5

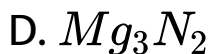
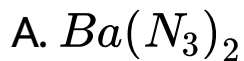
D. 8.9

Answer: C



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19. Which azide is explosive ?

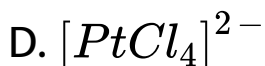


Answer: A



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20. dsp^2 hybridisation is found in



Answer: B



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21. Which of the following order of basic strength is correct ?

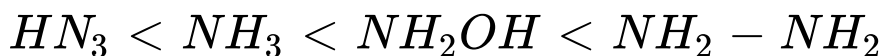
A.



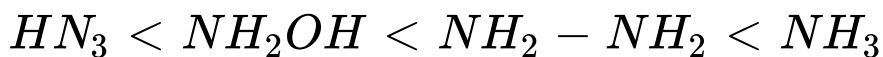
B.



C.



D.



Answer: B



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22. A packet of colloidal system is taken in which colloidal particles are still. Two electrodes are taken in system and voltage is applied so that liquid medium moves under the influence of electric field. This phenomenon is called

- A. dorn effect
- B. electroosmosis
- C. electrophoresis
- D. electrodialysis

Answer: B



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23. Which one forms KHX_2 type compound ?

A. HF

B. HCl

C. HI

D. HBr

Answer: A

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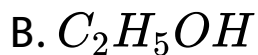
24. Rate determining step in nitration of benzene is

- A. formation of NO_2^+
- B. formation of carboncation
- C. replacement of H atom
- D. none of these

Answer: B

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25. Which of the following is stable (inert) to fire ?



Answer: A



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26. To pH value of decinormal solution of NH_4OH which is 20% ionised is

A. 12.95

B. 12.3

C. 14.7

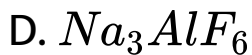
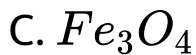
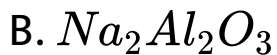
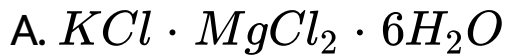
D. 13.3

Answer: B



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27. The composition of carnalite is



Answer: A



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28. A spoon to be electroplated with gold should be placed at:

A. cathode

B. anode

C. electrolyte

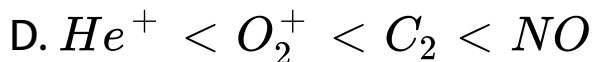
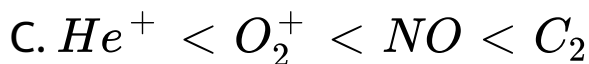
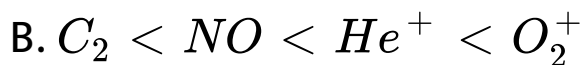
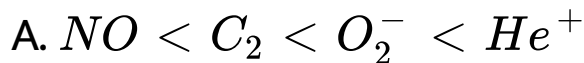
D. none of these

Answer: A



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29. Which of the following option w.r.t. increasing bond order is correct ?



Answer: D



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30. A solid AB has $NaCl$ structure. If the radius of the cation A is 100 pm, what is the radius of anion B ?

A. 190.47

B. 540.13

C. 525

D. 78.12

Answer: A



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31. Correct equation of Freundlich isotherm is

A. $\log \left(\frac{x}{m} \right) = \log K + \frac{1}{n} \log C$

B. $\log \left(\frac{m}{x} \right) = \log K + \frac{1}{n} \log C$

C. $\log \left(\frac{x}{m} \right) = \log C + \frac{1}{k} \log C$

D. $\log \left(\frac{x}{m} \right) = \log C + \frac{1}{n} \log K$

Answer: A



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32. Crystalline solids have

A. short range order

B. long range order

C. anisotropic distribution

D. no order

Answer: C



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33. The number of electrons delivered at the cathode during electrolysis by a current of 1

ampere in 60 seconds is (charge on electron
 $= 1.60 \times 10^{-19} C$)

A. 3.74×10^{20}

B. 6.0×10^{23}

C. 7.48×10^{21}

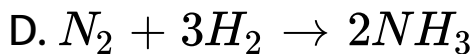
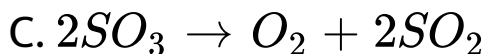
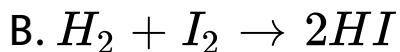
D. 6.0×10^{20}

Answer: A



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34. In which of the following reaction $K_p > K_c$



Answer: C



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35. The IUPAC name of the compound having the formula CCl_3CH_2CHO is

A. 2,2, 2-trichloropropanal

B. 1,1, 1-trichloropropanal

C. 3,3, 3-trichloropropanal

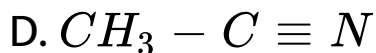
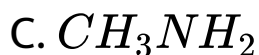
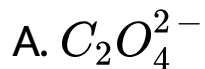
D. 1,2, 1-dichloromethanal

Answer: C



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36. Which of the following molecules or ions is a bidentate ligand ?



Answer: A



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37. The "mole"s of electrons required to deposit 1 gm equivalent aluminium (at wt. =27) from a solution of aluminium chloride will be:

A. 3

B. 1

C. 4

D. 2

Answer: A



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38. Which of the following is a characteristic of a reversible reaction ?

A. it never proceeds to completion

B. it can be influenced by a catalyst

C. it proceeds only in forward direction

D. number of moles of reactants and products are equal

Answer: B



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39. What volume of NH_3 gas at STP would be needed to prepare 100 ml of 2.5 molal (2.5 m) ammonium hydroxide solution?

A. 5.6 lit

B. 0.056 lit

C. 11.2 lit

D. 0.56 lit

Answer: A



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40. The equilibrium constant of a reaction is 300, if the volume of the reaction flask is tripled, the equilibrium constant will be

A. 300

B. 100

C. 600

D. 150

Answer: A



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41. Which of the following is the correct sequence of atomic weights of given elements?

A. $Ni > Co > Fe$

B. $Fe > Co > Ni$

C. $Co > Fe > Ni$

D. $Co > Ni > Fe$

Answer: D



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42. The aqueous solution of which of the following salt will have the lowest pH ?



Answer: C



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43. Which of the following alkanes is optically active ?

A. 3-methyl hexane

B. propane

C. 2,3, 4-trimethyl pentane

D. 2-methyl butane

Answer: A



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44. A solution with $\text{pH}=2$ is more acidic than one with a $\text{pH}=6$, by a factor

A. 4000

B. 5000

C. 8000

D. 10000

Answer: D



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45. Vapour pressure of benzene at $30^{\circ}C$ is 121.8 mm. When 15 g of a non-volatile solute is dissolved in 250 g of benzene its vapour pressure decreased to 120.2 mm. The molecular weight of the solute is (mol. Weight of solvent = 78)

A. 35.67 g

B. 356.7 g

C. 432.8 g

D. 502.7 g

Answer: B



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46. BCl_3 molecule is planar while NCl_3 is pyramidal because

A. B-Cl bond is more polar than N-Cl bond

B. N-Cl bond is more covalent than B-Cl bond

C. nitrogen atom is smaller than boron atoms

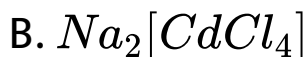
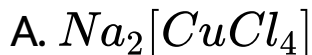
D. BCl_3 has no lone pair but NCl_3 has a lone pair of electrons

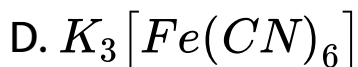
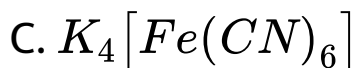
Answer: D



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47. Which of the following compound is not coloured ?





Answer: A



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48. 0.1890g of an organic compound gave 0.2870g of silver chloride by Carius method. Find the percentage of chlorine in the compound

A. 35.47

B. 35.57

C. 37.57

D. 45.37

Answer: C



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49. Which of the following statement is not true about alcohols ?

A. lower alcohols have fiery taste and strong smell

B. as molecular mass increases the boiling point increases

C. lower alcohols are water insoluble and their solubility increases with molecular weight

D. lower alcohols are water soluble and their solubility decreases with molecular weight

Answer: C



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50. The electronic configuration $1s^2 2s^2 2p^5 3s^1$ shows

- A. ground state of fluorine atom
- B. excited state of fluorine atom
- C. excited state of neon atom
- D. excited state of ion O_2^-

Answer: C



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51. Assertion(A): Relative strength of acids can be known by knowing the value of dissociation constant.

Reason (R) : It gives the value of H^+ dissolved in solution

A. If both A and R are true and R is the correct explanation of A.

B. If both A and R are true but R is not the correct explanation of A.

C. If A is true but R is false

D. If A is false but R is true.

Answer: A



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52. Statement 1: o-nitrophenol has higher boiling point than p-nitrophenol.

Statement 2: Intermolecular hydrogen bonding is present in p-nitrophenol and intramolecular hydrogen bonding in o-nitrophenol.

- A. If both A and R are true and R is the correct explanation of A.
- B. If both A and R are true but R is not the correct explanation of A.
- C. If A is true but R is false
- D. If A is false but R is true.

Answer: A



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53. Assertion (A) : CH_3OCH_3 and C_2H_5OH

has comparable molecular weight but boiling point of C_2H_5OH is more than dimethyl ether.

Reason (R) : C_2H_5OH forms intermolecular. H-bonding while CH_3OCH_3 forms intramolecular H-bonding.

A. If both A and R are true and R is the correct explanation of A.

B. If both A and R are true but R is not the correct explanation of A.

C. If A is true but R is false

D. If A is false but R is true.

Answer: C



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54. Assertion(A) : $CHCl_3$ and CH_3OH are miscible .

Reason (R) : One of them is polar.

A. If both A and R are true and R is the correct explanation of A.

B. If both A and R are true but R is not the correct explanation of A.

C. If A is true but R is false

D. If A is false but R is true.

Answer: A



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55. Assertion: In some cases oxygen shows positive oxidation number though it is an electronegative element.

Reason: Fluorine is more electronegative than oxygen.

A. If both A and R are true and R is the correct explanation of A.

B. If both A and R are true but R is not the correct explanation of A.

C. If A is true but R is false

D. If A is false but R is true.

Answer: A



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56. Assertion (A) : B_2H_6 , SiH_6 are said to have similar structure .

Reason (R) : They have same number of σ and π bonds.

A. If both A and R are true and R is the correct explanation of A.

B. If both A and R are true but R is not the correct explanation of A.

C. If A is true but R is false

D. If A is false but R is true.

Answer: D



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57. Hydrogen nucleus combines to form helium then energy is released.

Binding energy/nucleon of He is greater than hydrogen.

A. If both A and R are true and R is the correct explanation of A.

B. If both A and R are true but R is not the correct explanation of A.

C. If A is true but R is false

D. If A is false but R is true.

Answer: A



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58. Water is used as a moderator in nuclear reactor.

Moderator is a light substance that absorb neutrons.

A. If both A and R are true and R is the correct explanation of A.

B. If both A and R are true but R is not the correct explanation of A.

C. If A is true but R is false

D. If A is false but R is true.

Answer: A



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59. Assertion: Ionisation potential of Be (atomic no.4) is less than B (atomic no.5).

Reason: The first electron released from Be is of p-orbital but that from B is of s-orbital.

A. If both A and R are true and R is the correct explanation of A.

B. If both A and R are true but R is not the correct explanation of A.

C. If A is true but R is false

D. If A is false but R is true.

Answer: D



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60. Assertion (A): Na_2SO_4 is soluble in water while $BaSO_4$ is insoluble.

Reason (R): Lattice enthalpy of $BaSO_4$ exceeds its hydration enthalpy.

A. If both A and R are true and R is the correct explanation of A.

B. If both A and R are true but R is not the correct explanation of A.

C. If A is true but R is false

D. If A is false but R is true.

Answer: A



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