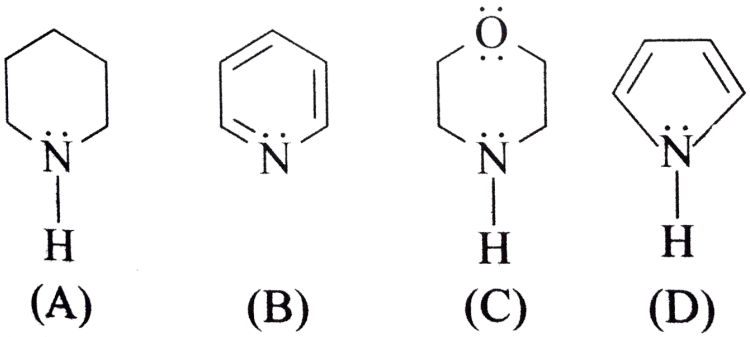
CHEMISTRY

BOOKS - NTA MOCK TESTS

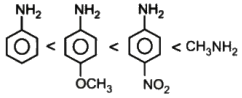
JEE MOCK TEST 5

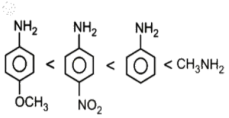
Chemistry

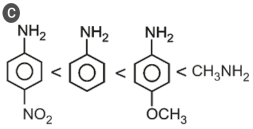
1. Among the following compounds the correct order of basicity is



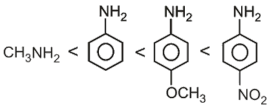
(A) (B) (C) (D)

A. 

B. 

C. 

Correct Answer

D. 

Answer: C

Watch Video Solution

2. Benzene and naphthalene form ideal solution over the entire range of composition. The vapour pressure of pure benzene and naphthalene at 300 K are 50.71 mm Hg and 32.06 mm Hg respectively. Calculate the mole fraction of benzene in vapour phase if 80 g of benzene is mixed with 100 g of naphthalene.

A. 0.0675

B. 0.675

C. 0.35

D. 0.5

Answer: B

Watch Video Solution

3. The pressure of H_2 required to make the potential of H_{2^-} electrode zero in pure water at $298K$ is

A. 10^{-14} atm

B. 10^{-12} atm

C. 10^{-10} atm

D. 10^{-4} atm

Answer: A

Watch Video Solution

4. Calculate ΔH_f° for chloride ion from the following data :

$$\frac{1}{2}H_{2(g)} + \frac{1}{2}Cl_{2(g)} \rightarrow HCl_{(g)}, \Delta H_f^\circ = -92.4kJ$$

$$HCl_{(g)} + nH_2O \rightarrow H^+_{(aq.)} + Cl^-_{(aq.)}, \Delta H^\circ = -74.8kJ$$

$$\Delta H_f^\circ H^+_{(aq.)} = 0.0kJ$$

A. -167.2 kJ

B. -165.2 kJ

C. -157.2 kJ

D. -147.2 kJ

Answer: A

Watch Video Solution

5. Complete the following chemical reaction equations :

(i) $\underset{(\text{cold and dilute})}{NaOH} + Cl_2 \rightarrow$

(ii) $XeF_6 + H_2O \rightarrow$ (excess)

A. NaOH and XeO_3

B. $HClO_3$ and XeO_2F_2

C. $NaClO_3$ and XeO_3

D. None of these

Answer: C

Watch Video Solution

6. Select the nature or type of redox change in the following reaction -

$$Cl_2 \rightarrow ClO^- + Cl^-$$

A. Disproportionation

B. Intramolecular redox

C. Intermolecular redox

D. None of the above

Answer: A

 Watch Video Solution

7. The K_{sp} of $FeS = 4 \times 10^{-19}$ at 298 K. The minimum concentration of H^+ ions required to prevent the precipitation of FeS from a 0.01 M solution Fe^{2+} salt by passing $H_2S(0.1M)$ (Given $H_2Sk_{a_1} \times k_{b_1} = 10^{-21}$)

A. 1.6×10^{-3} M

B. 2.5×10^{-4} M

C. 2.0×10^{-2} M

D. 1.2×10^{-4} M

Answer: A

Watch Video Solution

8. Pb and Sn are extracted from their chief ore by :

A. Carbon reduction and self reduction

B. self reduction and carbon reduction

C. Electryloysis and self reduction.

D. Self reduction and electrolysis.

Answer: B

Watch Video Solution

9. The carbonate of which of the following cation is soluble in water ?

A. Na^+

B. K^+

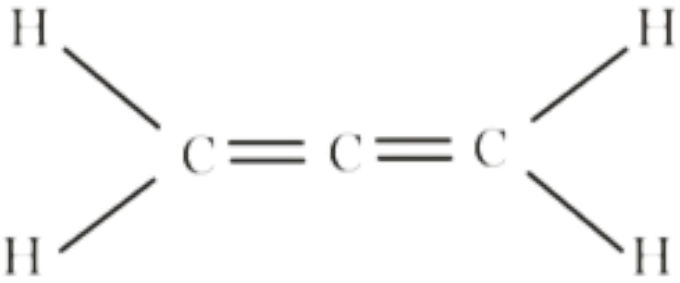
C. NH_4^+

D. Ca^{2+}

Answer: D

Watch Video Solution

10. The lewis structure of allene is



Which of the following statements correctly gives answers for all 3 parts:

(a) Is the molecule planar?

(b) Does 1,3- dichloro propadiene show geometrical isomerism?

(c) is the molecule 1,3 - dichloro propadiene polar?

A. (i) Non-planar, (ii) No geometrical isomersim , (iii) polar

B. (i) planar, (ii) No geometrical isomerism, (iii) polar

C. (i) planar, (ii) Yes geometrical isomerism, (iii) polar

D. (i) Non planar, (ii) No geometrical isomerism, (iii) Not polar

Answer: A

Watch Video Solution

11. In orthorhombic , the value of a, b and c are respectively $4.2\text{Å}, 8.6\text{Å}$ and 8.3Å .Given the molecular mass of the solute is $155gm/mol$ and that of density is $3.3gm/cm^3$ the number of formula unit per unit cell is

A. 2

B. 3

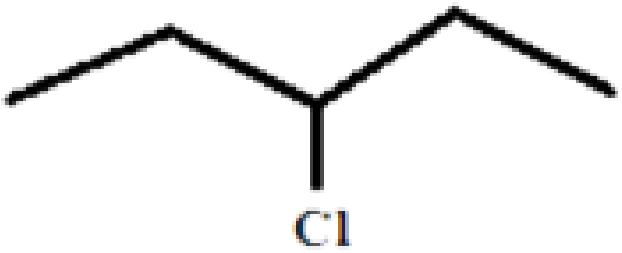
C. 4

D. 6

Answer: C

Watch Video Solution

12. Determine the number of planes of symmetry of the given compound



A. 1

B. 2

C. 3

D. 4

Answer: A

Watch Video Solution

13. Gaseous benzene reacts with hydrogen gas in the presence of nickel catalyst to give gaseous cyclohexane. A mixture of benzene vapour and hydrogen had a pressure of 60 mm Hg in vessel. After all benzene converted to cyclohexane, the pressure of the gas was 30 mm Hg in the same volume and at the same temperature. What fraction (by mole) of the original mixture was benzene?

A. 0.167

B. 0.333

C. 0.666

D. 1

Answer: A

Watch Video Solution

14. Correct acidic strength of given acids is:-

$$H_3C - \underset{I}{\overset{O}{\overset{||}{C}}} - OH$$

(II) $HO - \overset{O}{\overset{||}{C}} - \overset{O}{\overset{||}{C}} - OH$

(III) $HO - \overset{O}{\overset{||}{C}} - CH_2 - CH_2 - \overset{O}{\overset{||}{C}} - OH$

A. I $>$ II $>$ III

B. $II > III > I$

C. $II > I > III$

D. $III > II > I$

Answer: B

Watch Video Solution

15. Larger number of oxidation states are exhibited by the actinoids then those by the lanthanoids, the main reason being

A. More reactive nature of the actinides than the lanthanides

B. 4f orbitals more diffused than the 5f orbitals

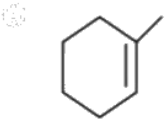
C. More energy difference between 5f and 6d than between 4f and 5d orbitals

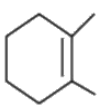
D. lesser energy difference between 5f and 6d than between 4f and 5d orbitals.

Answer: D

Watch Video Solution

16. Hydroboration oxidation and acid hydration will yield the same product in case of:

A. 

B. 

C. $CH_2 = CH_2$

D. $CH_3CH = CH - CH_3$

Answer: A

Watch Video Solution

17. According to kinetic theory of gases in an ideal gas between two successive collisions a gas molecule travels .

A. In a circular path

B. In a wavy path

C. In a straight line path

D. With an accelerated velocity

Answer: C

Watch Video Solution

18. The equilibrium constant for a reaction $A + B \Leftrightarrow C + D$ is 1×10^{-2} at $298K$ and is 2 at $273K$. The chemical process resulting in the formation of C and D is

A. Exothermic

B. Endothermic

C. Unpredictable

D. There is no relationship between ΔH and K

Answer: A

Watch Video Solution

19. Correct IUPAC name for $H_2N-\underset{\underset{OC_2H_5}{|}}{\overset{\overset{CH_3}{|}}{C}}-CH_2CH_3$ is

A. 1-Ethoxy -1-ethyl-1-aminopropane

B. 1-Ethoxy-1-amino-1-ethylpropane

C. 1-Ethoxy-2-butanol

D. 2-Ethoxybutan-2-amine

Answer: D

Watch Video Solution

20. Second ionization potential value is very low for

A. sodium

B. magnesium

C. fluorine

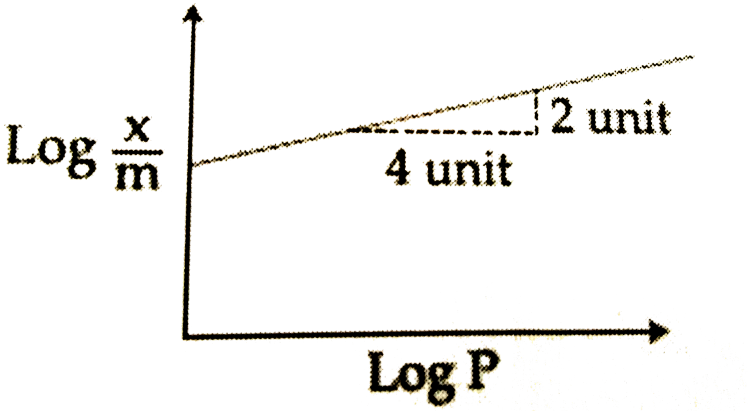
D. oxygen

Answer: B

Watch Video Solution

Watch Video Solution

21. Adsorption of a gas follows Freundlich adsorption isotherm. In the given plot,x is the mass of the gas adsorbed on mass m of the adsorbent at pressure P. If $\frac{x}{m} \propto P^{\frac{1}{y}}$ find the magnitude of y is:



Watch Video Solution

22. Washing soda is $Na_2CO_3.xH_2O$. The value of x is

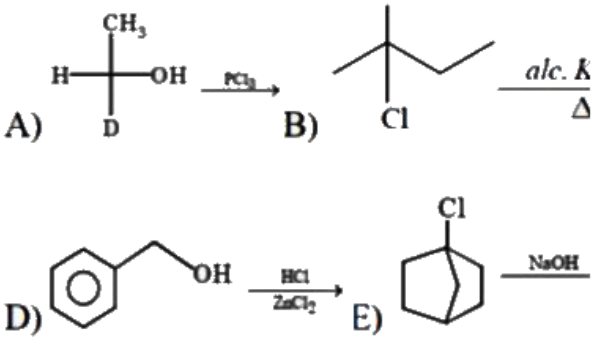
Watch Video Solution

23. How many among the following can exhibit linkage isomerism?

i .	$[CoCl_2(en)_2]Cl$
ii.	$(NH_4)_2[Pt(SCN)_6]$
iii.	$[Cr(H_2O)_6]Cl_3$
iv.	$K_3[Al(C_2O_4)_3]$
v.	$[Co(NH_3)_5NO_2]SO_4$
vi .	$[Ag(NH_3)_2]Cl$
vii.	$K_2[PdCl_4]$

Watch Video Solution

24. Identify number of nucleophilic substitution reactions in the given reactions?



Watch Video Solution

25. The highest oxidation state exhibited by a transition metal is

Watch Video Solution