doubtnut
India's Number 1 Education App

CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA JEE MOCK TEST 48

Chemistry

1. If pK_a for CN^- at $25^\circ C$ is 4.7, the pH of 0.5 M aqueous NaCN solution is

A. 10

B. 11.5

C. 11

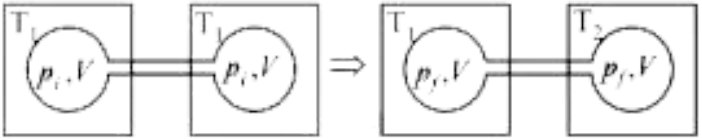
D. 12

Answer: B

Watch Video Solution

2. Two closed bulbs of equal volume (V) containing an ideal gas initially at pressure p_i and temperature T_1 are connected through a narrow tube of negligible volume as shown in the figure below. The temperature of one of the bulbs is then raised to T_2. The final

pressure p_f is:



A. $2p_i\left(\frac{T_1T_2}{T_1+T_2}\right)$

B. $p_i\left(\frac{T_1T_2}{T_1+T_2}\right)$

C. $p_i\left(\frac{T_1}{T_1+T_2}\right)$

D. $p_i\left(\frac{T_2}{T_1+T_2}\right)$

Answer: D

Watch Video Solution

3. 10 ml of 1 millimolar surfactant solution forms a monolayer covering $0.24cm^2$ on a polar substrate.

If the polar head is approximated as a cube. Consider the surfactant is adsorbed only on one face of the cube. What is the edge length of cube? (Answer should be in pm and assume Avogadro's number $= 6 \times 10^{23}$).

A. 2.0 pm

B. 2.0 pm

C. 1.0 pm

D. 0.1 pm

Answer: A

Watch Video Solution

4. The equilibrium constant at $298K$ for a reaction, $A + B \Leftrightarrow C + D$ is 100. If the initial concentrations of all the four species were 1M each, then equilibirum concentration of D (in molL^{-1}) will be

A. 1.182

B. 0.182

C. 0.818

D. 1.818

Answer: D

Watch Video Solution

Watch Video Solution

5. Which of the following will be the major product when 3 - phenylpropene reacts with HBr?

A. $C_6H_5CH_2CHBrCH_3$

B. $C_6H_5CHBrCHCH_2$

C. $C_6H_5CH_2CH_2CH_2Br$

D. $C_6H_5CHBrCH_2CH_3$

Answer: D

Watch Video Solution

6. Which of the following compounds is metallic and ferromagnetic ?

A. MnO_2

B. TiO_2

C. CrO_2

D. VO_2

Answer: C

Watch Video Solution

7. The main oxides formed on combustion of Li,Na and K in excess of air respectively are

A. Li_2O, Na_2O_2 and KO_2

B. Li_2O, Na_2O and KO_2

C. LiO_2, Na_2O_2 and K_2O

D. Li_2O_2, Na_2O_2 and KO_2

Answer: A

Watch Video Solution

8. Which of the following is an anionic detergent ?

A. Glyceryl oleate

B. Sodium stearate

C. Sodium lauryl sulphate

D. Cetyltrimethyl ammonium bromide

Answer: C

Watch Video Solution

9. The reaction of zinc with dilute and concentrated nitric acid, respectively, produce

A. NO_2 and N_2O

B. N_2O and NO_2

C. NO_2 and NO

D. NO and N_2O

Answer: B

Watch Video Solution

10. Which of. the following set of reagents are used for preparing paracetamol from phenol?

A. $HNO_3, H_2/Pd, (CH_3CO)_2O$

B. $H_2SO_4, H_2/Pd, (CH_3CO)_2O$

C. $C_6H_5N_2Cl, SnCl_2/HCl, (CH_3CO)_2O$

D. $Br_2/H_2O, Zn/HCl, (CH_2CO)_2O$

Answer: A

Watch Video Solution

11. $18g$ glucose $(C_6H_{12}O_6)$ is added to $178.2g$ water. The vapour pressure of water (in torr) for this aqueous solution is:

A. 759

B. 739.6

C. 746.0

D. 752.4

Answer: D

Watch Video Solution

12. $(X) \xrightarrow{KOH + CHCl_3} (Y) \xrightarrow{LiAlH_4} CH_3CH_2NHCH_3$

Identify compound X

A. $CH_3 - CH_2 - \overset{\overset{O}{||}}{C} - OH$

B. $CH_3 - CH_2 - \overset{\overset{O}{||}}{C} - NH_2$

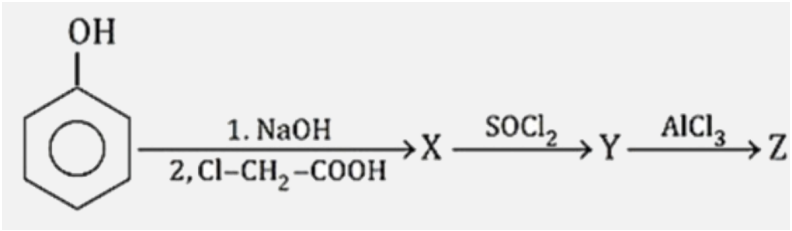
C. $CH_3 - CH_2 - \overset{\overset{O}{||}}{C} - Cl$

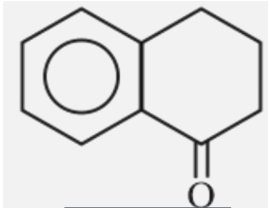
D. $CH_3 - CH_2 - NH_2$

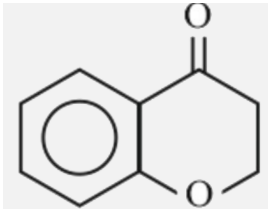
Answer: D

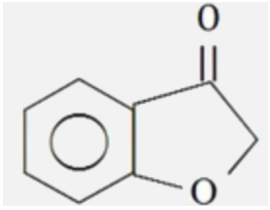
Watch Video Solution

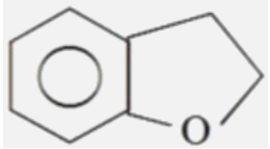
13. Identify 'Z' in the given sequence of reaction



A. 

B. 

C. 

D. 

Answer: C

Watch Video Solution

14. The pair in which phosphours atoms have a formed oxidation state of $+3$ is

A. Pyrophosphorous and pyrophosphoric acids

B. Orthophosphorous and pyrophosphorous acids

C. Pyrophosphorous and hypophosphoric acids

D. Orthophosphorous and hypophosphoric acids

Answer: B

Watch Video Solution

Watch Video Solution

15. Which one of the following complexes shows optical isomerism?

A. $\left[Co(NH_3)_4Cl_2\right]Cl$

B. $\left[Co(NH_3)_3Cl_3\right]$

C. $cis\left[Co(en)_2Cl_2\right]Cl$

D. $trans\left[Co(en)_2Cl_2\right]Cl$

(en = enthylendiamine)

Answer: C

Watch Video Solution

16. Among the following which statement is incorrect ?

A. $CH_3 - \overset{\overset{O}{||}}{C} - Oh \xrightarrow{X_2 / OH^-}$ will not respond to haloform test

B. $CH_2 = cH - CH = O \xrightarrow{(\overset{\oplus}{O}H) / \Delta}$ gives cannizaro reaction

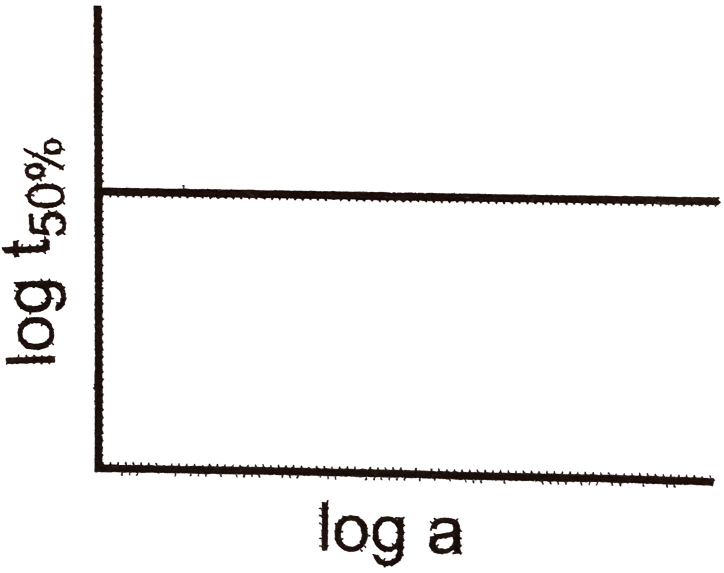
C. $Cl - \overset{\overset{Cl}{|}}{\underset{\underset{Cl}{|}}{C}} - CH = O \xrightarrow{\overset{\oplus}{O}H / \Delta}$ does not give cannizaro reaction

D.

Answer: D

Watch Video Solution

17. A graph plotted between log $t_{50\%}$ vs log concentration is a straight line. What conclusion can you draw from this graph?



A. $n = 1, t_{\frac{1}{2}} = \frac{1}{k.\, a}$

B. $n = 2, t_{\frac{1}{2}} = \frac{1}{a}$

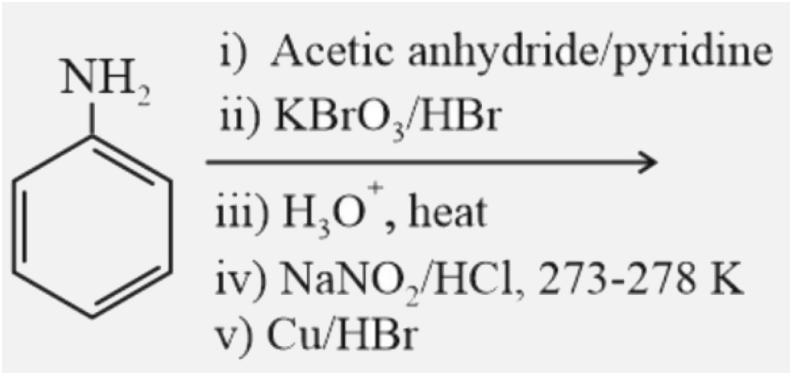
C. $n = 1, t_{\frac{1}{2}} = \frac{0.693}{k}$

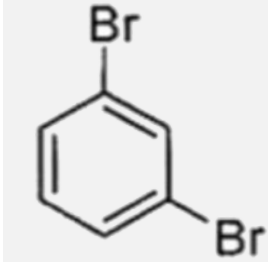
D. None of these

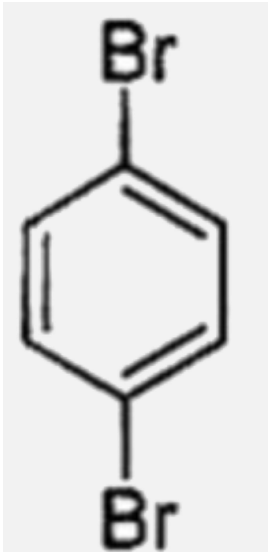
Answer: C

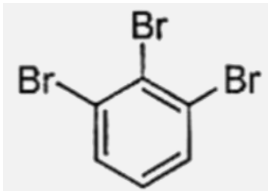
Watch Video Solution

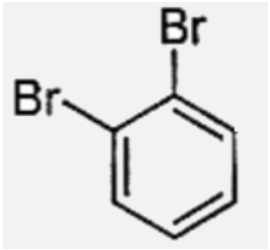
18. The product (s) of the following reaction sequence is (are)



A. 

B. 

C. 

D. 

Answer: B

Watch Video Solution

19. The decreasing order of strength of the bases, $OH^-, NH_2^-, H-C\equiv C^-$ and $CH_3-CH_2^-$:

A. $CH_3-cH_2^- > NH_2^- > H-C\equiv C^-$

B.

$$H-C\equiv C^- > CH_3-CH_2^- > NH_2^- > OH^-$$

C.

$$OH^- > NH_2^- > H-C\equiv C^- > CH_3-CH_2$$

D.

$$NH_2^- > H - C \equiv C^- > OH^- > CH_3 - CH_2$$

Answer: A

Watch Video Solution

20. Photochemical smog consists of excessive amount of X, in addition to aldehydes, ketones, peroxyacetyl nitrate (PAN), and so forth X is:

A. CH_4

B. CO

C. CO_2

D. O_3

Answer: D

Watch Video Solution

21. The sum of the total number of sigma bonds between chromium and oxygen atoms in chromate and dichromate ions is

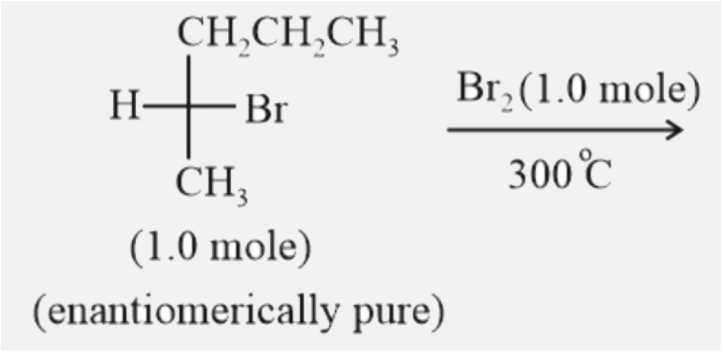
Watch Video Solution

22. Among the triatomic molecules/ions $BeCl_2, N_3^-, N_2O, NO_2^+, O_3, SCl_2, lCl_2^-, l_3^-$ and

XeF_2, the total number of linear molecules (s)/ion(s) where the hybridisation of the central atom does not have contribution from the d- orbitals (s) is [atomic number of $S = 16, Cl = 17, I = 53$ and $Xe = 54$]

Watch Video Solution

23. In eh following monobromination reaction the number of possible chiral products are



Watch Video Solution

24. In an isothermal expansion of one mole of an ideal gas against vacuum from 10 litre to 100 litre at $27^{\circ} C$, the quantity of heat absorbed by the gas is

Watch Video Solution

25. 0.02 equivalent of Ag was deposited in an electrolysis experiment. If same quantity of a electricity is passed through a gold solution, 1.314 g of gold is deposited. Find oxidation state of the gold. (Atomic mass of Au = 197)

Watch Video Solution