

JEE Main Online Exam 2019

[Memory Based Paper]

Questions & Answer

12th January 2019 | Shift - I

CHEMISTRY

Q.1 A solution of 4 % X and another solution having 12 % Y (Both solution have same solvent). If molar mass of X is A then molecular mass of Y is -

- (1) 3A (2) A (3) $\frac{A}{2}$ (4) 2A

Ans. [1]

Q.2 BOD of sample first is 4 ppm and BOD of second sample is 18 ppm. Which one is correct statement -

- (1) Both are highly polluted (2) Both are clean
(3) First is clean and second is highly polluted (4) Second is clean and first is highly polluted.

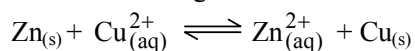
Ans. [3]

Q.3 When concentrated HNO₃ react with I₂ then what is the oxidation state of iodine in product -

- (1) 7 (2) 3 (3) 5 (4) 1

Ans. [3]

Q.4 For the following chemical reaction at T = 300 K



If cell potential is 2 V and $\frac{dE}{dT} = -5 \times 10^{-4}$ find ΔH .

$$F = 96500 \text{ C}$$

- (1) 384 kJ (2) + 96 kJ (3) - 412 kJ (4) - 380 kJ

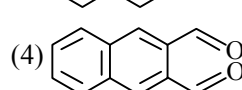
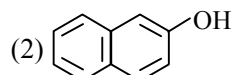
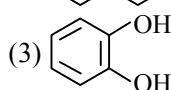
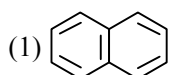
Ans. [3]

Q.5 An element having atomic no. 120 (not yet discovered) is -

- (1) Transition metal (2) Inner transition metal (3) Alkaline earth metal (4) Alkali metal

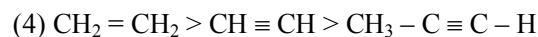
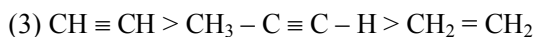
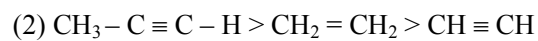
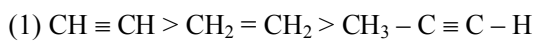
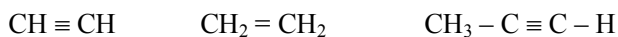
Ans. [3]

Q.6 Which of the following has lowest freezing point -



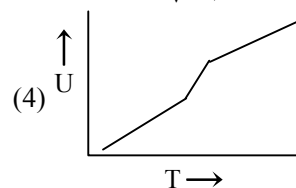
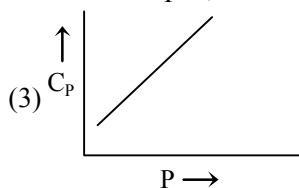
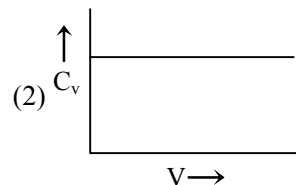
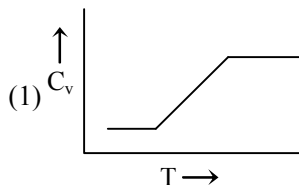
Ans. [1]

Q.7 Which is the correct order of reactivity towards NaOH for following -



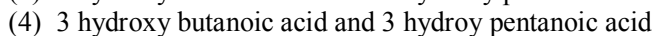
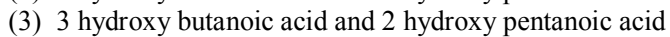
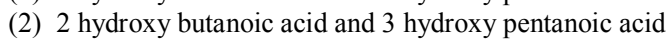
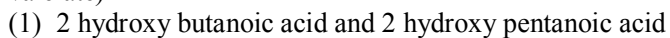
Ans. [3]

Q.8 Which of the graph given below is incorrect -

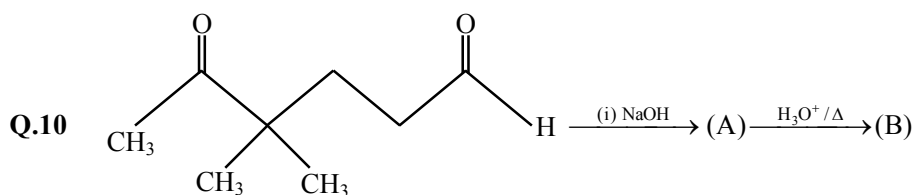


Ans. [3]

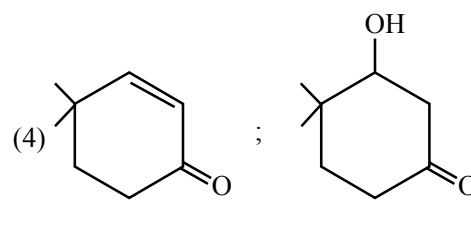
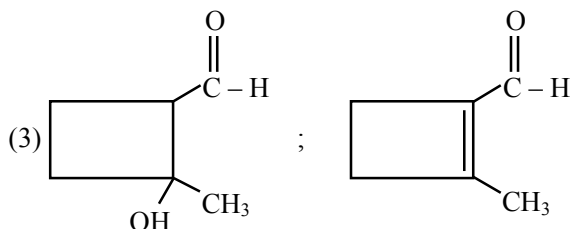
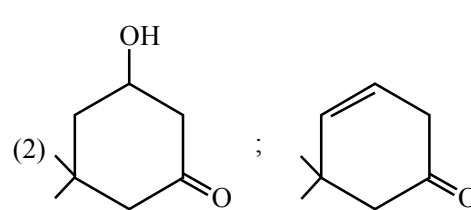
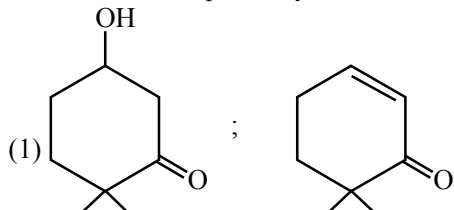
Q.9 Which of the molecules are used to prepare co-polymer PHBV (Poly - β -hydroxybutyrate - Co - β -hydroxy valerate)



Ans. [4]



Product A & B respectively are



Ans. [1]

- Q.11** $A + 2B \rightleftharpoons 2C + D$
 Initial concentration of B is 1.5 times of A and at equilibrium, concentration of A and B are equal then find K_C
 (1) 8 (2) 4 (3) 2 (4) 6

Ans. [2]

- Q.12** Most Basic Amino acid is -
 (1) Histidine (2) Arginine (3) Cysteine (4) Serine

Ans. [2]

- Q.13** If critical temperature of following gases are .
 H_2, CO, CO_2, SO_2
 33K 132.1K 304.25K 430.25K respectively, then
 Which is least absorbed by activated charcoal.
 (1) H_2 (2) CO (3) CO_2 (4) SO_2

Ans. [1]

- Q.14** If magnetic moment of $[M(H_2O)_6]Cl_2$ is 3.9 B.M. Then M can be -
 (1) V^{+2} & Cr^{+2} (2) Fe^{+2} & V^{+2} (3) Fe^{+2} & Cr^{+2} (4) V^{+2} & Co^{+2}

Ans. [4]

- Q.15** In Hall heroult process, the cathode is made up of -
 (1) C (2) Pure Al (3) Pt (4) Cu

Ans. [1]

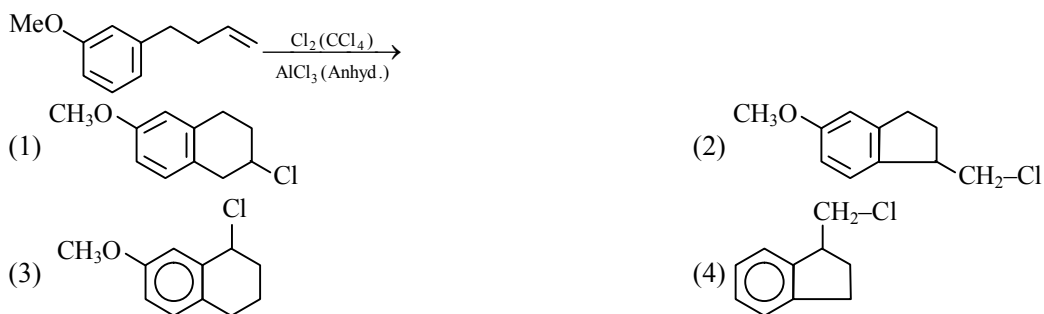
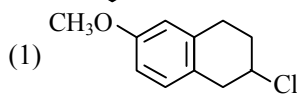
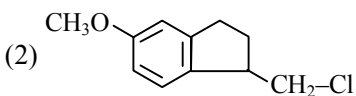
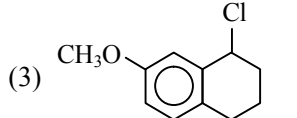
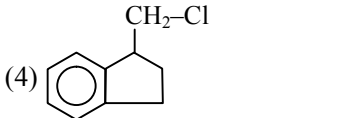
- Q.16** If $M + O_2 \rightarrow X$
 $X + H_2O \rightarrow Z + H_2O_2 + O_2$. Then element M is -
 (1) Li (2) Rb (3) Na (4) Mg

Ans. [2]

- Q.17** If solid A(s) is dissociated in a closed container having equilibrium constant
 $A(s) \rightleftharpoons B(g) + C(g) \quad K_{p_1} = x$
 and in the same container D(s) is also added, if $K_{p_2} = y$ is equilibrium constant for
 $D(s) \rightleftharpoons C(g) + E(g)$
 Total pressure at equilibrium is -

- (1) $\sqrt{x+y}$ (2) $2\sqrt{x+y}$ (3) $\sqrt{x^2+y^2}$ (4) $(x+y)$

Ans. [2]

- Q.18** 
- (1)  (2) 
 (3)  (4) 

Ans. [1]

Q.19 Which compound is minimum or not found in photochemical smog

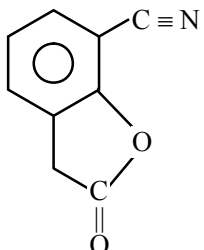
- (1) $\text{CH}_2 = \text{O}$ (2) NO_2 (3) O_3 (4) N_2

Ans. [4]

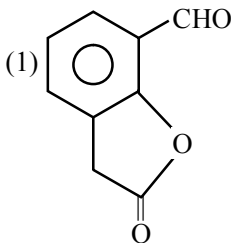
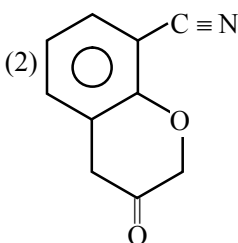
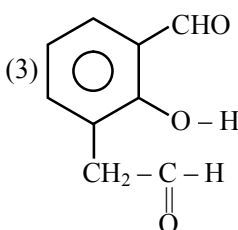
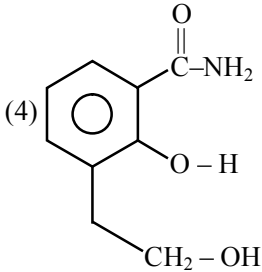
Q.20 $\text{CH}_3 - \text{CH}_2 - \overset{\text{OH}}{\underset{\text{Ph}}{\text{C}}} - \text{CH}_3$ can not be prepared by following -

- (1) $\text{H} - \overset{\text{O}}{\parallel}{\text{C}} - \text{H} + \text{Ph} - \overset{\text{CH}_3}{\text{CH}} - \text{MgBr}$ (2) $\text{CH}_3 - \text{CH}_2 - \overset{\text{O}}{\parallel}{\text{C}} - \text{CH}_3 + \text{PhMg X}$
 (3) $\text{Ph} - \overset{\text{O}}{\parallel}{\text{C}} - \text{CH}_3 + \text{EtMgBr}$ (4) $\text{Ph} - \overset{\text{O}}{\parallel}{\text{C}} - \text{CH}_2 - \text{CH}_3 + \text{MeMgBr}$

Ans. [1]

Q.21  $\xrightarrow[\text{H}_3\text{O}^{+1}]{\text{DiBAL-H}}$ Product

What is the product -

- (1)  (2) 
 (3)  (4) 

Ans. [3]

Q.22 If A discompose as $0.05 \mu\text{g}$ per year then how many years it will require to discompose from $5 \mu\text{g}$ to $2.5 \mu\text{g}$ -

- (1) 25 (2) 20 (3) 100 (4) 50

Ans. [4]

Q.23 If gas A has compressibility factor $3Z$ and volume $2V$ and gas B has compressibility factor Z and volume V at same temperature and same mole, then find relationship between P_A and P_B

- (1) $3P_A = 2P_B$ (2) $2P_A = 3P_B$ (3) $P_A = P_B$ (4) $2P_A = P_B$

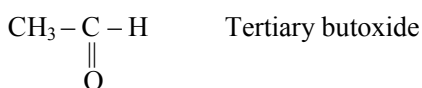
Ans. [2]

Q.24 What is the hardness in terms of CaCO_3 of water in the given sample which contain 10^{-3} M CaSO_4 (mol wt 136)

- (1) 100 ppm (2) 10 ppm (3) 20 ppm (4) 90 ppm

Ans. [1]

Q.25 Aldehyde + Alcohol \longrightarrow Acetal



Which is suitable combination

- (1) $\text{H} - \underset{\text{O}}{\underset{\parallel}{\text{C}}} - \text{H}$, MeOH (2) $\text{H} - \underset{\text{O}}{\underset{\parallel}{\text{C}}} - \text{H}$, Tertiary butoxide
(3) $\text{CH}_3 - \underset{\text{O}}{\underset{\parallel}{\text{C}}} - \text{H}$, MeOH (4) $\text{CH}_3 - \underset{\text{O}}{\underset{\parallel}{\text{C}}} - \text{H}$, Tertiary butoxide

Ans. [4]

Q.26 50 ml of 0.5 M oxalic acid neutralizes 25 ml of NaOH. Then the amount of NaOH in 50 ml -

- (1) 80g (2) 4g (3) 5g (4) 40 g

Ans. [2]

Q.27 With which d orbital ligand CN^\ominus will form coordinate bond in $\text{K}_3[\text{Co}(\text{CN})_6]$

- (1) $dx^2 - y^2, dz^2$ (2) $dx^2 - y^2, dxy$ (3) dxy, dxz (4) dz^2

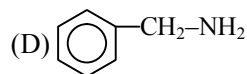
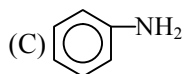
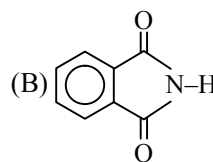
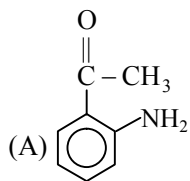
Ans. [1]

Q.28 A photons falls on the metal surface having wavelength 4000 \AA and ejected electron have velocity 6×10^5 m/sec. Calculate work function in (eV) ($m_e = 9.1 \times 10^{-31}$ kg)

- (1) 2.1 eV (2) 3.1 eV (3) 2.5 eV (4) 4.1 eV

Ans. [1]

Q.29 Reactivity order of these compound with Alkyl halide –



(1) $B > C > A > D$

(2) $A > B > C > D$

(3) $D > A > B > C$

(4) $D > C > A > B$

Ans. [4]