

# ChemGuru

## JEE Main Online Exam 2019

### [Memory Based Paper]

### Questions & Answer

12<sup>th</sup> 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.

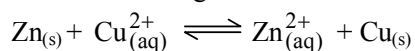
**Ans.** [3]

**Q.3** When concentrated HNO<sub>3</sub> react with I<sub>2</sub> 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  $\Delta H$ .

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

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

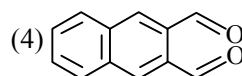
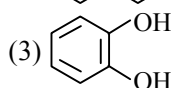
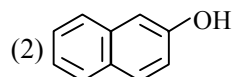
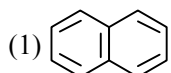
**Ans.** [3]

**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

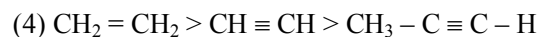
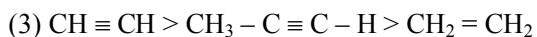
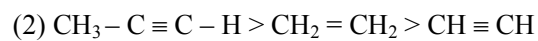
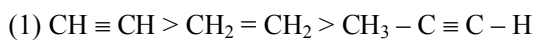
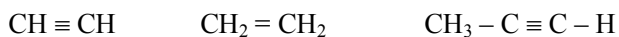
**Ans.** [3]

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



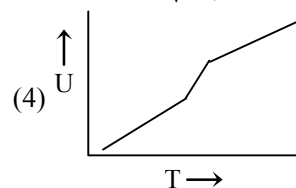
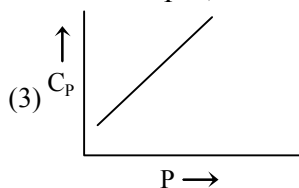
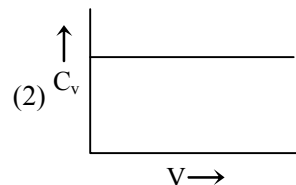
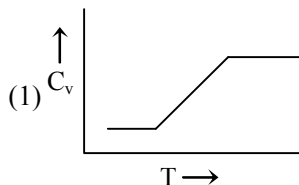
**Ans.** [1]

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



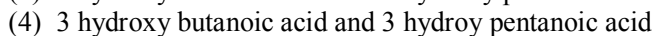
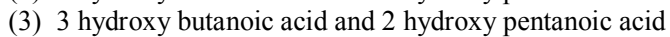
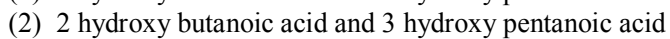
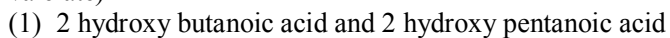
Ans. [3]

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

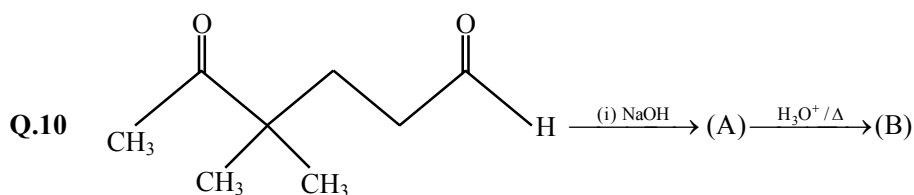


Ans. [3]

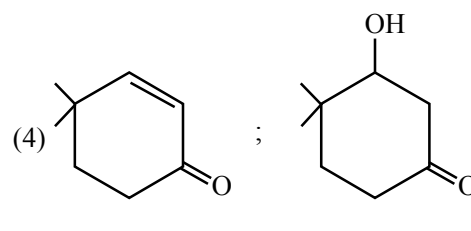
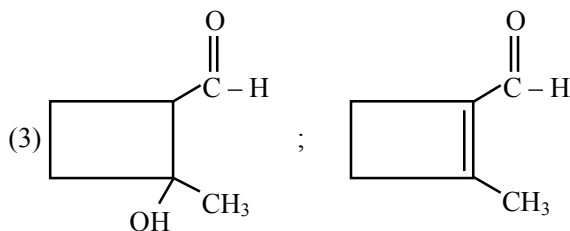
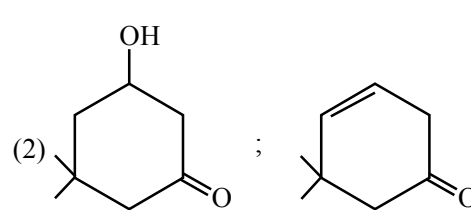
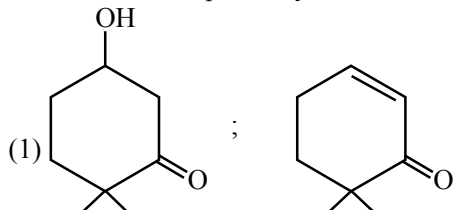
Q.9 Which of the molecules are used to prepare co-polymer PHBV (Poly -  $\beta$ -hydroxybutyrate - Co -  $\beta$ -hydroxy valerate)



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]

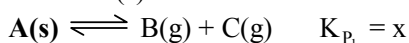
**Q.16** If  $M + O_2 \rightarrow X$

$X + H_2O \rightarrow Z + H_2O_2 + O_2$ . Then element M is -

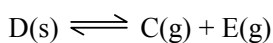
- (1) Li (2) Rb (3) Na (4) Mg

**Ans.** [2]

**Q.17** If solid A(s) is dissociated in a closed container having equilibrium constant



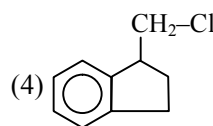
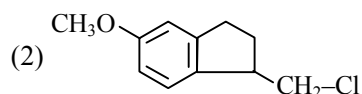
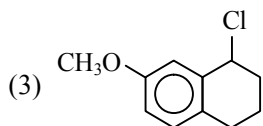
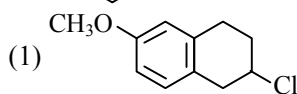
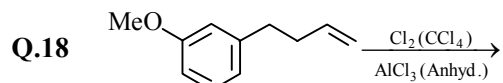
and in the same container D(s) is also added, if  $K_{p_2} = y$  is equilibrium constant for



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]



**Ans.** [1]

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

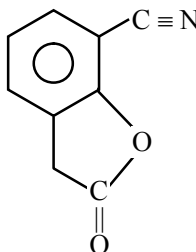
- (1)  $\text{CH}_2 = \text{O}$  (2)  $\text{NO}_2$  (3)  $\text{O}_3$  (4)  $\text{N}_2$

**Ans.** [4]

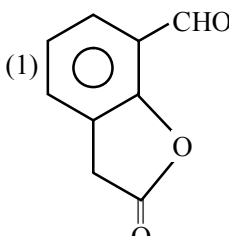
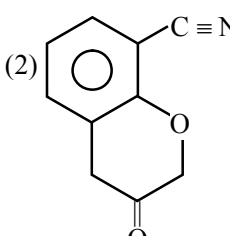
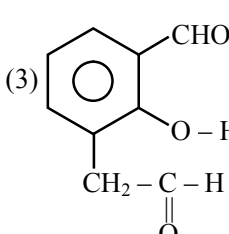
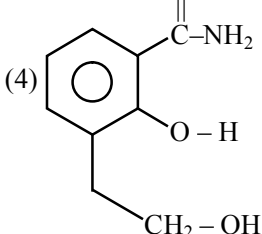
**Q.20**  $\text{CH}_3 - \text{CH}_2 - \overset{\text{OH}}{\underset{\text{Ph}}{\text{C}}} - \text{CH}_3$  can not be prepared by following -

- (1)  $\text{H} - \overset{\text{O}}{\parallel}{\text{C}} - \text{H} + \text{Ph} - \overset{\text{CH}_3}{\text{CH}} - \text{MgBr}$  (2)  $\text{CH}_3 - \text{CH}_2 - \overset{\text{O}}{\parallel}{\text{C}} - \text{CH}_3 + \text{PhMgX}$   
 (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)  $2P_A = P_B$

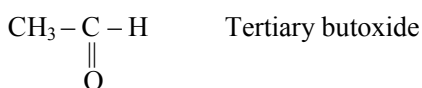
**Ans.** [2]

**Q.24** What is the hardness in terms of  $\text{CaCO}_3$  of water in the given sample which contain  $10^{-3}$  M  $\text{CaSO}_4$  (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  $\text{CN}^\ominus$  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)  $dz^2$

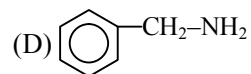
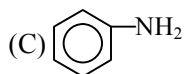
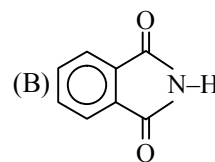
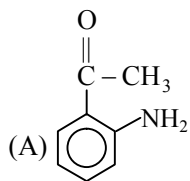
**Ans.** [1]

**Q.28** A photons falls on the metal surface having wavelength  $4000 \text{ \AA}$  and ejected electron have velocity  $6 \times 10^5$  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]