

JEE Main Online Exam 2019

[Memory Based Paper]

Questions & Answer

9th January 2019 | Shift - II

CHEMISTRY

Q.1 Which of the following element form nitride -

- (1) Li (2) Cs (3) K (4) Rb

Ans. [1]

Q.2 Cu form FCC crystal lattice having $a = x \text{ \AA}$. The density (g/cm^3) of its solid is, (Atomic mass of Cu = 63.5 g/mole)

- (1) $\frac{421.716}{x^3}$ (2) $\frac{205}{x^3}$ (3) $\frac{212}{x^3}$ (4) $\frac{351.716}{x^3}$

Ans. [1]

Q.3 $2A + B \rightarrow C$

If initial rate of reaction is 0.3 M/sec., on doubling concentration of both A & B rate becomes 2.4 M/sec. On doubling A alone rate becomes 0.6 M/sec then order of reaction is :

- (1) w.r.t. A is 2 (2) w.r.t. B is 2
(3) total order of reaction is 4 (4) order of B is 1

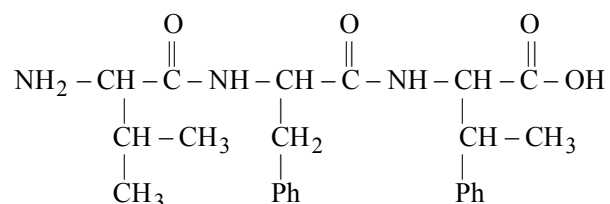
Ans. [2]

Q.4 $A_2 + B_2 \xrightleftharpoons{k_1} 2AB$; $6AB \xrightleftharpoons{k_2} 3A_2 + 3B_2$. Relation between k_1 and k_2 is (where k_1 and k_2 are equilibrium constants)

- (1) $k_2 = \frac{1}{K_1^3}$ (2) $k_1 = \frac{K_2^3}{3}$ (3) $k_2 = 3k_1$ (4) $k_1 = 3k_2$

Ans. [1]

Q.5



Sequence of amino acids in above tripeptide -

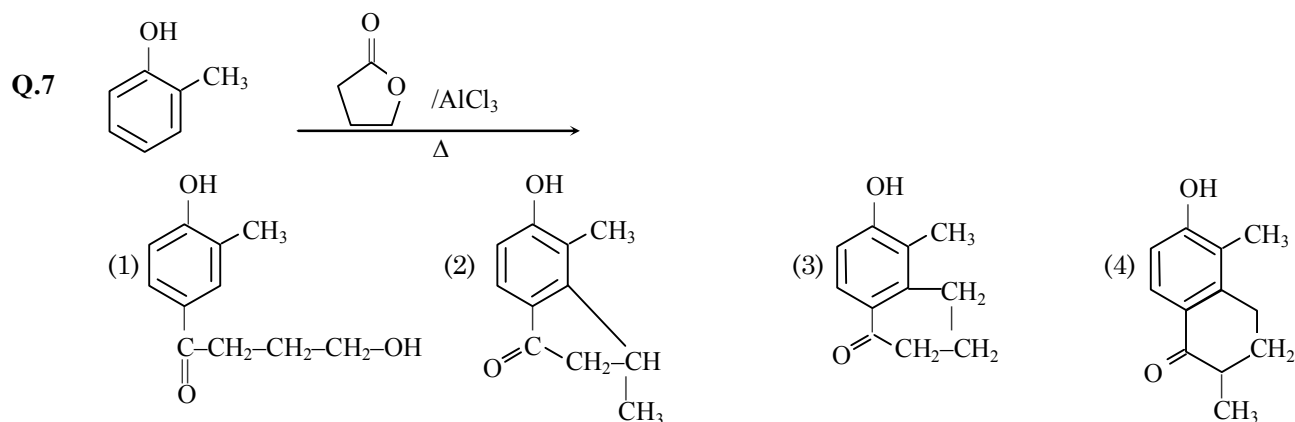
- (1) Thr - Phe - Val (2) Val - Phe - Thr (3) Val - Thr - Phe (4) Thr - Val - Phe

Ans. [2]

Q.6 What is pH of Rain water -

- (1) 5.6 (2) 7.6 (3) 7 (4) 10

Ans. [1]

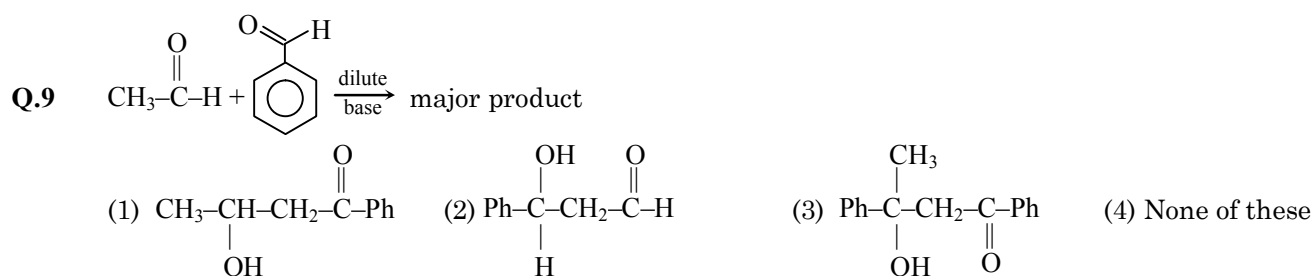


Ans. [1]

Q.8 Which process observe increase in bond order and change in behavior from paramagnetic to diamagnetic -

- (1) $O_2 \longrightarrow O_2^+$ (2) $NO \longrightarrow NO^+$ (3) $O_2 \longrightarrow O_2^-$ (4) $N_2 \longrightarrow N_2^+$

Ans. [2]



Ans. [2]

Q.10 Reason for temporary hardness -

- (1) NaCl (2) BaCl₂ (3) CaCl₂ (4) Ca(HCO₃)₂

Ans. [4]

Q.11 Reducing strength of H₃PO₂ is due to -

- (1) 1 P-OH bond (2) 2 P-OH bond (3) 2 P-H bond (4) 1 P-H bond

Ans. [3]

Q.12 Which of the following is not aromatic -



Ans. [1]

- Q.13** Which of the following has maximum tendency to coagulate As_2S_3 -
 (1) $AlCl_3$ (2) $BaCl_2$ (3) Na_3PO_4 (4) $NaCl$

Ans. [1]

- Q.14** Which of the following transition elements has highest heat of atomization
 (1) Cu (2) V (3) Fe (4) Zn

Ans. [2]

- Q.15** Find the mass of H_2O formed if combustion of 445 gm $C_{57}H_{110}O_6$ takes place -
 (1) 490 gm (2) 495 gm (3) 890 gm (4) 690 gm

Ans. [2]

- Q.16** If 0.2 M, 10 ml NaOH is dissolved in 0.1 M, 20 ml CH_3COOH , the pH of the resulting solution. If $pK_a = 4.74$.

- (1) 7.89 (2) 8.78 (3) 9.34 (4) 10.23

Ans. [2]

- Q.17** Which are of the following has highest Δ_0
 (1) $[Co(NH_3)_5H_2O]Cl_3$ (2) $K_4[Co(NH_3)_5Cl]$ (3) $K_3[Co(CN)_6]$ (4) $[Co(H_2O)_6]Cl_3$

Ans. [3]

- Q.18** Which of the following statement is or are correct -

(a) angular momentum is integral multiple of $\frac{h}{2\pi}$.

(b) Principal quantum number depends on size.

(c) Azimuthal quantum number depends on size.

(d) magnetic quantum number is related to shape of the orbital.

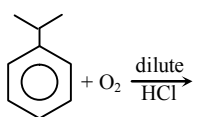
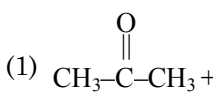
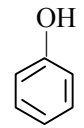
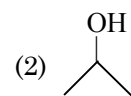
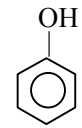
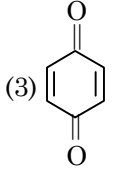
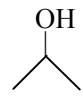
- (1) a, c (2) a, d (3) c, d (4) a, b

Ans. [4]

- Q.19** 62 g of ethylene glycol is present in 250 g of water, If water is cooled to $-10^\circ C$. Then how much ice is separated -

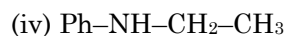
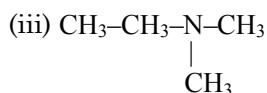
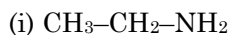
- (1) 64 (2) 120 (3) 90 (4) 35

Ans. [1]

- Q.20**  + $O_2 \xrightarrow[\text{HCl}]{\text{dilute}}$
- (1)  +  (2)  +  (3)  +  (4) All of these

Ans. [1]

Q.21 Arrange in order of basicity ?



(1) $\text{ii} > \text{iii} > \text{i} > \text{iv}$

(2) $\text{ii} > \text{i} > \text{iii} > \text{iv}$

(3) $\text{iii} > \text{i} > \text{iv} > \text{ii}$

(4) $\text{ii} > \text{iv} > \text{i} > \text{iii}$

Ans. [1]

Q.22 If standard electrode potential at 300 k for the given reaction is 2 volt

$\text{Zn(s)} + \text{Cu}^{+2}(\text{aq}) \rightarrow \text{Zn}^{+2}(\text{aq}) + \text{Cu(s)}$. Then, find K_{eq} for the reaction – [Given $R = 8 \text{ J mol}^{-1} \text{ K}^{-1}$ and $F = 96500 \text{ C}$]

(1) e^{160}

(2) e^{-160}

(3) e^{320}

(4) e^{-320}

Ans. [1]

Q.23 If M^{+3} ion forms complex with $\text{L}_1, \text{L}_2, \text{L}_3$

Ligands Absorbed light by complex

L_1 Blue

L_2 Green

L_3 Red

What is correct order of strength of ligand -

(1) $\text{L}_3 < \text{L}_1 < \text{L}_2$

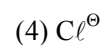
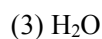
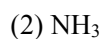
(2) $\text{L}_3 < \text{L}_2 < \text{L}_1$

(3) $\text{L}_1 < \text{L}_2 < \text{L}_3$

(4) $\text{L}_2 < \text{L}_1 < \text{L}_3$

Ans. [3]

Q.24 Which of the following is strongest field ligand -



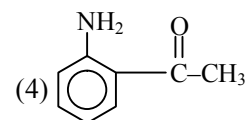
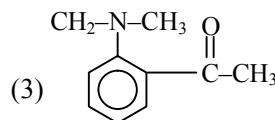
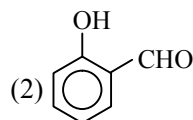
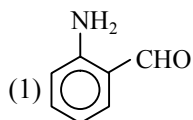
Ans. [1]

Q.25 Which compound will give -

(i) Positive iodoform test

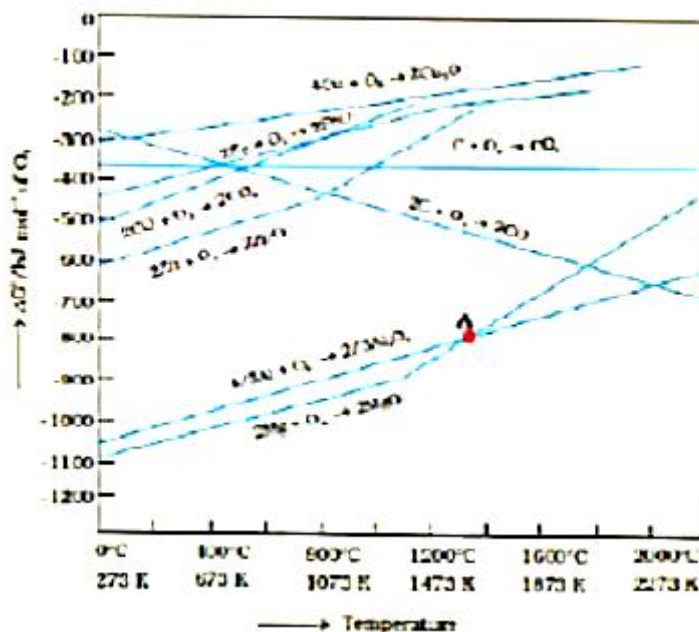
(ii) 2, 4 DNP test

(iii) do not form Diazonium salt



Ans. [3]

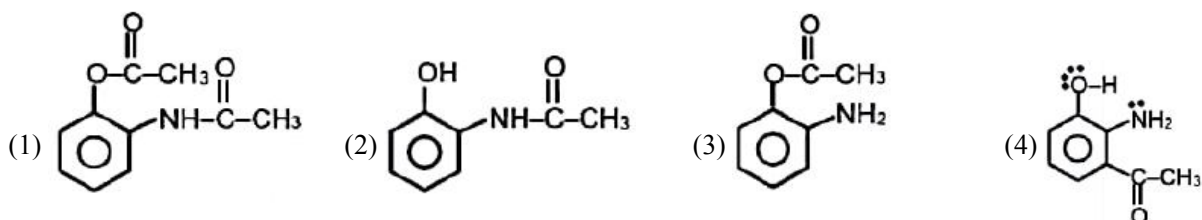
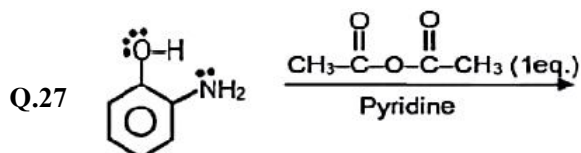
Q.26 Ellingham diagram given :



Which reaction is feasible

- (1) Al can be extracted from Al_2O_3 by coke
- (2) We can extract Zn from ZnO by coke at 500°C
- (3) Zn can be extracted by ZnO by using Al at 500°C
- (4) We can extract Cu from Cu_2O by carbon reduction.

Ans. [3]

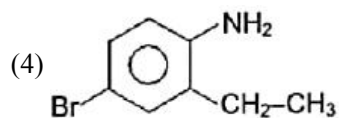
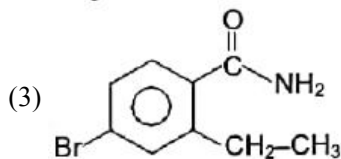
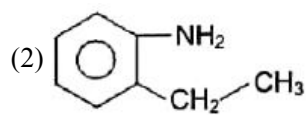
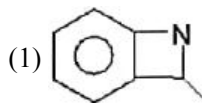
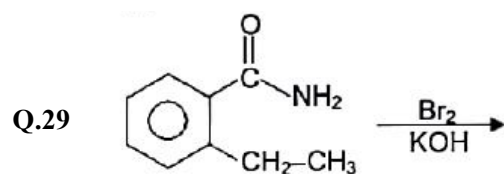


Ans. [2]

Q.28 Methemoglobinemia disease occurs due to high quantity of the following in water.

- (1) Greater than 50 ppm of Pb
- (2) Greater than 50 ppm of NO_3^-
- (3) Greater than 50 ppm of S^{2-}
- (4) Greater than 50 ppm of Cl^-

Ans. [2]



Ans. [2]