

JEE Main Online Exam 2019

Questions & Solutions

10th April 2019 | Shift - II

(Memory Based)

CHEMISTRY

Q.1 $K_C = 6 \times 10^{16}$, $\Delta H = -230$ kJ/mole incorrect statement is -

- (1) If inert gas is introduced at constant volume no change in value of K_C
- (2) K_C represent high function of product
- (3) by increasing temperature K_C decreases
- (4) by increasing pressure K_C increases

Ans. [4]

Q.2 Maximum oxidation number of uranium and plutonium is -

- (1) +3, +4
- (2) +4, +6
- (3) +6, +7
- (4) +5, +6

Ans. [3]

Q.3 Increasing order of 1st I.E of Ti, Fe, Ni, Zn -

- (1) Ti < Ni < Fe < Zn
- (2) Zn < Fe < Ni < Ti
- (3) Fe < Ti < Ni < Zn
- (4) Ti < Zn < Fe < Ni

Ans. [1]

Q.4 In C_{60} fullerene structure how many pentagons are present and in white phosphorus no. of triangles present are -

- (1) 15, 5
- (2) 12, 4
- (3) 20, 5
- (4) 20, 4

Ans. [2]

Q.5 Which of the following is correct -

- (1) Ti - Zone refining
- (2) Ag - leaching using NaCN
- (3) Zincite - Carbonate ore
- (4) Mg - Magnetite

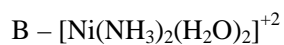
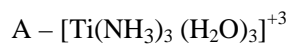
Ans. [2]

Q.6 Shortest wavelength ratio of H atom 1 : 9 for which series it belongs

- (1) Lyman and Paschen
- (2) Paschen and Balmer
- (3) Lyman and Brackett
- (4) Paschen and Balmer

Ans. [1]

Q.7 For the following complex compounds



according to crystal field theory the value of CFSE is -

- (1) $\frac{4}{9} \Delta_0, \Delta_t$ (2) $\Delta_0, \frac{4}{9} \Delta_0$ (3) $\Delta_t, \frac{4}{9} \Delta_t$ (4) $\frac{5}{4} \Delta_0, \Delta_0$

Ans. [2]

Q.8 0.02 M NH_4Cl solution pH = ? (for NH_4OH $K_b = 10^{-5}$)

- (1) 4.8 (2) 5.35 (3) 4.95 (4) 8.54

Ans. [2]

Q.9 For a chemical reaction at

$$327^\circ\text{C} \quad K = 2.5 \times 10^{-4}$$

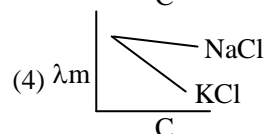
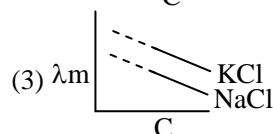
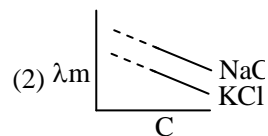
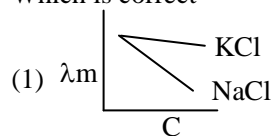
$$527^\circ\text{C} \quad K = 1$$

$$E_a = ? \quad (\text{kJ/mole})$$

- (1) 175.43 (2) 165.1 (3) 185 (4) 190

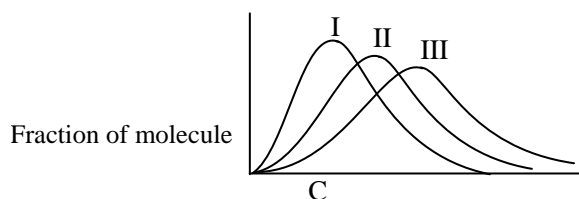
Ans. [2]

Q.10 Which is correct



Ans. [3]

Q.11



I, II, III are correct for -

- (1) H_2 (300K), N_2 (300K), O_2 (400K) (2) H_2 (400K), N_2 (400K), O_2 (300K)
- (3) N_2 (300K), O_2 (400K), H_2 (300K) (4) O_2 (400K), N_2 (300K), H_2 (300K)

Ans. [3]

Q.12 For combustion of heptane $\Delta H - \Delta U = ?$

(1) $-\frac{7}{2}RT$

(2) $-4RT$

(3) $-3RT$

(4) $-\frac{9}{2}RT$

Ans. [2]

Q.13 1 gm solute in two different solvent each containing 100 gm –

$$\frac{\Delta T_{f_1}}{\Delta T_{f_2}} = \frac{1}{5} \text{ then } \frac{K_{f_1}}{K_{f_2}} = ?$$

(1) $\frac{1}{5}$

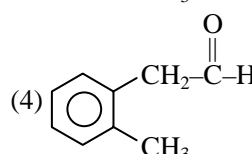
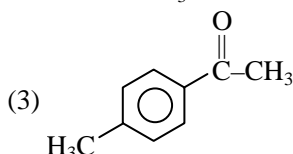
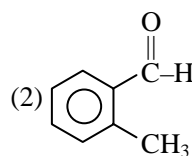
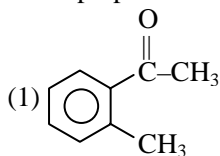
(2) $\frac{2}{5}$

(3) $\frac{5}{1}$

(4) $\frac{2}{25}$

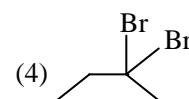
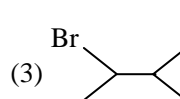
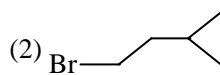
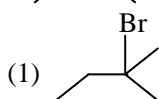
Ans. [1]

Q.14 A compound which gives '+' ve iodoform test and when reacts with $KMnO_4$ gives $C_8H_6O_4$ and anhydride used in the preparation of phenolphthalein ?



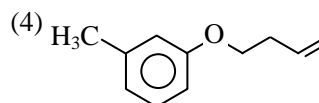
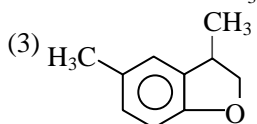
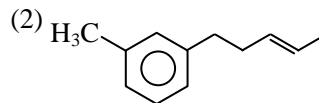
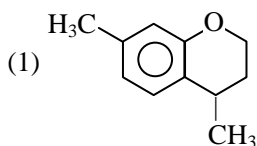
Ans. [1]

Q.15



Ans. [1]

Q.16



Ans. [1]

- Q.17** Acyclic conformer are not affected by -
(1) steric crowding (2) Electrostatic force (3) Torsional strain (4) Angle strain
Ans. [4]

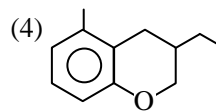
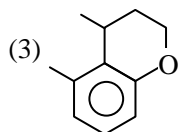
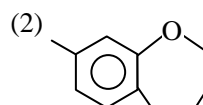
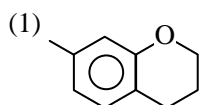
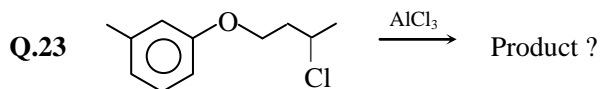
- Q.18** Air pollution caused by sunlight -
(1) oxidising smog (2) Reducing smog (3) Acid rain (4) fog
Ans. [1]

- Q.19** No. of stereogenic centre in open chain and cyclic form of glucose -
(1) 4, 4 (2) 4, 5 (3) 5, 4 (4) 5, 5
Ans. [2]

- Q.20** Which of the following noble gas is not present in atmosphere?
(1) He (2) Ne (3) Kr (4) Rn
Ans. [4]

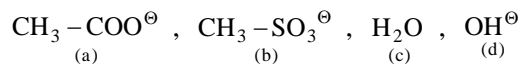
- Q.21** In which of the following minimum amount of O_2 is required per gram of reactant ?
(1) $P_4 + 5O_2 \rightarrow P_4O_{10}$ (2) $2Mg + O_2 \rightarrow 2MgO$
(3) $4Fe + 3O_2 \rightarrow 2Fe_2O_3$ (4) $C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$
Ans. [2]

- Q.22** Which of the following statement is correct ?
(1) Brownian motion of colloidal particle does not depend on size of particle
(2) Electrophoresis is used for ppt of hydrophobic colloid
(3) Adsorption is endothermic experiment
(4) Colloidal medicine are better due to smaller surface area
Ans. [2]



Ans. [1]

Q.24 Order of nucleophilicity –



(1) $a > d > b > c$

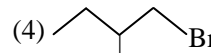
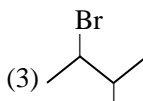
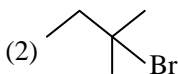
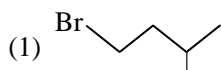
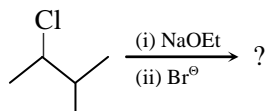
(2) $d > a > b > c$

(3) $c > a > b > d$

(4) $b > a > c > d$

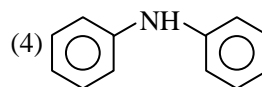
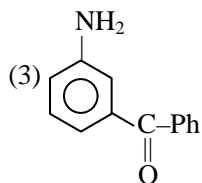
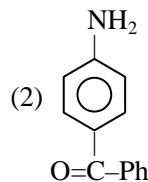
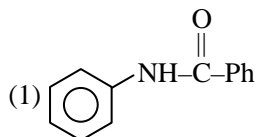
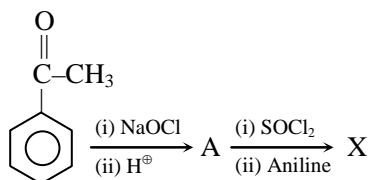
Ans. [2]

Q.25 Major product of this reaction is –



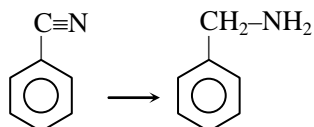
Ans. [2]

Q.26 Major product (X) is –



Ans. [1]

Q.27 Which reagent is not suitable for this reaction



(1) LiAlH_4

(2) $\text{Sn} + \text{HCl} / \text{NaBH}_4$

(3) H_2/Pd

(4) LiA/N_4

Ans. [2]



Q.28 Correct Match

	Column-A		Column-B
(i)	Nylon-6	(a)	Ziegler Natta catalyst
(ii)	Novalac	(b)	peroxide catalyst
(iii)	High density polythene	(c)	Condensation at high T and P
(iv)	Polyacrylonitrile	(d)	Catalysed by acid and base

(1) (i) →d; (ii) →a; (iii) →c; (iv) →b

(2) (i) →a; (ii) →c; (iii) →b; (iv) →d

(3) (i) →c; (ii) →d; (iii) →a; (iv) →b

(4) (i) →b; (ii) →c; (iii) →a; (iv) →d

Ans. [2]