

CHEMISTRY

41) Which one is the common name of the compound $\text{CH}_2 = \text{CH} - \text{CHO}$?

(A) Mesityl Oxide

(B) Prop-2-Enal

(C) Acrolein

(D) Propanal-1-ene

42) What is the correct order of acidity of compound (I), (II) and (III)?

I) 4-Nitrobenzoic acid

II) 4-Methoxy Benzoic acid

III) Benzoic acid

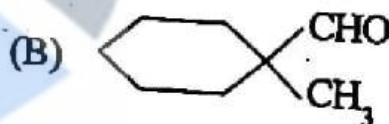
(A) I > III > II

(B) I > II > III

(C) I < II < III

(D) I < III < II

43) Which of the following compound does not give cannizzaro reaction?



(C) HCHO

(D) CH_3CHO

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- 44) Which compound will give Hoffmann bromamide degradation reaction?
- (A) $\text{Ar}-\text{CONH}_2$ (B) $\text{Ar}-\text{NH}_2$
(C) $\text{Ar}-\text{NO}_2$ (D) $\text{Ar}-\text{CH}_2\text{NH}_2$
- 45) Benzene diazonium chloride reacts with phenol in basic medium to give product. How many σ (sigma) and π (pi) bonds are present in that product?
- (A) 16 - σ and 7 - π (B) 16 - σ and 6 - π
(C) 26 - σ and 7 - π (D) 26 - σ and 6 - π
- 46) Methylamine reacts with HNO_2 to form?
- (A) $\text{CH}_3-\text{O}-\text{N}=\text{O}$ (B) CH_3-OH
(C) $\text{CH}_3-\text{O}-\text{CH}_3$ (D) CH_3-CHO
- 47) Which statement is not correct for Glucose?
- (A) When heated with HI it gives n-Hexane
(B) It is aldohexose
(C) It react with Hydroxyl amine
(D) It contain furanose structure

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- 48) Which base is not present in the DNA structure?
- (A) Uracil (B) Adenine
(C) Guanine (D) Cytosine
- 49) What are two monomers of Glyptal polymer?
- (A) Ethylene Glycol and Isophthalic acid
(B) Ethane - 1, 2-Diol and Phthalic acid
(C) Ethylene Glycol and Terephthalic acid
(D) Formaldehyde and Ethylene Glycol
- 50) Which polymer is used in making non-stick surface coated Utensils?
- (A) PHBV (B) Nylon 6,6
(C) Teflon (D) Buna - N
- 51) Which artificial sweetening agent is limited in for cold food and soft drinks?
- (A) Sucralose (B) Alitame
(C) Saccharin (D) Aspartame

(Space for Rough Work)

52) Polyethylene-glycol is used in the preparation of which types of detergent?

- (A) Anionic detergent
- (B) Non Ionic detergent
- (C) Cationic detergent
- (D) Soap

53) The correct order of the packing efficiency in different types of unit cell is _____.

- (A) $fcc > bcc > \text{simple cubic}$
- (B) $fcc < bcc < \text{simple cubic}$
- (C) $fcc < bcc > \text{simple cubic}$
- (D) $fcc = bcc > \text{simple cubic}$

54) Which of the following defect obtained by heating of zinc-oxide?

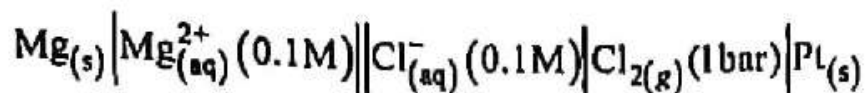
- (A) Impurity defect
- (B) Metal deficiency defect
- (C) Stoichiometric defect
- (D) Metal excess defect

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- 55) Which of the following aqueous solution has highest boiling point?
- (A) 0.1 M KNO_3 (B) 0.1 M urea
(C) 0.1 M $\text{K}_4[\text{Fe}(\text{CN})_6]$ (D) 0.1 M NH_4NO_3
- 56) We have three aqueous solutions of CH_3COONa labelled as A, B and C with concentration 0.1 M; 0.01 M and 0.001 M respectively. The value of Van't Hoff factor (i) for these solutions will be in order _____.
- (A) $i_A > i_B > i_C$ (B) $i_A < i_B < i_C$
(C) $i_A = i_B = i_C$ (D) $i_A < i_B > i_C$
- 57) What is the osmotic pressure (π) of 0.02 M solution of NaCl?
- (A) 0.01 RT (B) 0.02 RT
(C) 0.04 RT (D) 0.002 RT
- 58) Resistance of a conductivity cell filled with 0.1 M KCl solution is 100 Ω and conductivity of solution is 1.29 S/m. Then what will be the value of conductivity cell constant.
- (A) 1.29 cm^{-1} (B) 1.29 m^{-1}
(C) 1.24 cm^{-1} (D) 0.248 m^{-1}

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59) Which of the following is correct Nernst equation for the given electrochemical cell?



(A) $E_{\text{cell}} = E_{\text{cell}}^{\circ} - \frac{0.059}{2} \log \frac{[\text{Cl}^{-}]^2}{[\text{Mg}^{2+}]}$

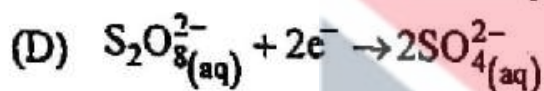
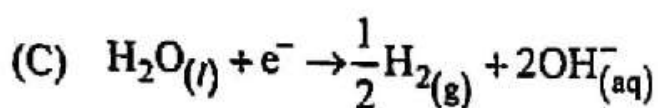
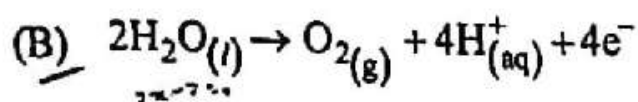
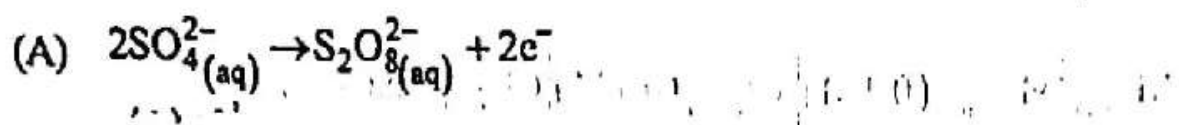
(B) $E_{\text{cell}} = E_{\text{cell}}^{\circ} - \frac{0.059}{2} \log \frac{[\text{Mg}^{2+}]}{[\text{Cl}^{-}]^2}$

(C) $E_{\text{cell}} = E_{\text{cell}}^{\circ} - \frac{0.059}{2} \log \frac{1}{[\text{Mg}^{2+}][\text{Cl}^{-}]^2}$

(D) $E_{\text{cell}} = E_{\text{cell}}^{\circ} - \frac{0.059}{2} \log [\text{Mg}^{2+}][\text{Cl}^{-}]^2$

(Space for Rough Work)

60) Which of the following chemical reaction occur at anode during electrolysis of higher concentrated H_2SO_4 solution?



61) For which of the following graph of first order reaction the value of slope will be $\frac{K}{2.303}$?

(A) $\log \frac{[\text{R}]_0}{[\text{R}]} \rightarrow t(\text{Time})$

(B) $\log \frac{[\text{R}]}{[\text{R}]_0} \rightarrow t(\text{Time})$

(C) $\ln \frac{[\text{R}]_0}{[\text{R}]} \rightarrow t(\text{Time})$

(D) $\ln \frac{[\text{R}]}{[\text{R}]_0} \rightarrow t(\text{Time})$

(Space for Rough Work)

- 62) Which will be the unit of rate constant for the reaction having $\text{Rate} = K[A]^{1/2} \cdot [B]^{3/2}$?
- (A) Second^{-1} (B) Mol/lit. Sec^{-1}
(C) $\text{Mol}^{-1} \cdot \text{lit. Sec}^{-1}$ (D) $(\text{Mol/lit})^2 \cdot \text{Sec}^{-1}$

- 63) A reaction is first order in terms of A and second order in terms of B. What will be the rate of reaction, if concentration of B is increased two times?
- (A) 4-Times (B) 2-Times
(C) 8-Times (D) 16-Times

- 64) Which of the following statement is incorrect for physisorption?

- (A) It arises because of Van der Waal's Force
(B) It is reversible in nature
(C) It is not specific in nature
(D) High temperature is favourable for adsorption. It increases with increase in temperature

- 65) Which is correct order of flocculating power in the coagulation of As_2S_3 Sol?

- (A) $\text{PO}_4^{3-} > \text{SO}_4^{2-} > \text{Cl}^-$ (B) $\text{Al}^{3+} > \text{Ba}^{2+} > \text{Na}^+$
(C) $\text{Al}^{3+} < \text{Ba}^{2+} < \text{Na}^+$ (D) $\text{PO}_4^{3-} < \text{SO}_4^{2-} < \text{Cl}^-$

(Space for Rough Work)

- 66) Mention percentage of Ag (Silver) in German silver alloy.
- (A) 20-30% (B) 10%
(C) 0.0% (D) 40-50%
- 67) Which of the following ore is not in oxide form?
- (A) Malachite (B) Haematite
(C) Magnetite (D) Zincite
- 68) By thermal decomposition of which of the following compound very pure dinitrogen gas can be obtained?
- (A) Ammonium dichromate (B) Ammonium Chloride
(C) Sodium Azide (D) Barium Nitrate
- 69) Which of the following oxide show acidic property?
- (A) MnO_2 (B) MnO
(C) Mn_2O_7 (D) Mn_2O_3
- 70) Which of the following are peroxo acids of Sulphur?
- (A) H_2SO_5 and $H_2S_2O_7$ (B) H_2SO_5 and $H_2S_2O_8$
(C) $H_2S_2O_7$ and $H_2S_2O_8$ (D) $H_2S_2O_6$ and $H_2S_2O_7$

(Space for Rough Work)

- 71) When alkaline KMnO_4 is treated with KI, Iodide ion is oxidised to _____.
- (A) IO^- (B) I_2
(C) IO_3^- (D) IO_4^-
- 72) In the electronic configuration of which of the following element-electron is arranged in 5d orbital?
- (A) ${}_{64}\text{Gd}$ (B) ${}_{63}\text{Eu}$
(C) ${}_{65}\text{Tb}$ (D) ${}_{66}\text{Dy}$
- 73) What kind of isomerism exists between $[\text{Cr}(\text{H}_2\text{O})_6]\text{Cl}_3$ and $[\text{Cr}(\text{H}_2\text{O})_5\text{Cl}]\text{Cl}_2 \cdot \text{H}_2\text{O}$?
- (A) Ionisation (B) Solvate
(C) Coordination (D) Linkage
- 74) How $t_{2g}^4 e_g^0$ configuration is possible for d^4 ion during crystal field splitting in Octahedral complex?
- (A) $\Delta_o = P$ (B) $\Delta_o \leq P$
(C) $\Delta_o < P$ (D) $\Delta_o > P$

(Space for Rough Work)

75) Which of the following species is not expected to be a ligand?

- (A) NH_4^+ (B) NO
(C) $\text{H}_2\text{N}-\text{CH}_2-\text{CH}_2-\text{NH}_2$ (D) CO

76) The following results are as under for the reaction $\text{S} + \text{Nu} \rightarrow \text{Product}$ by which reaction mechanism this reaction occurs?

Experiment	[S]	[Nu]	Rate $\left(\frac{\text{Concentration}}{\text{Time}}\right)$
1	0.1	0.1	2.2×10^{-3}
2	0.2	0.1	4.4×10^{-3}
3	0.1	0.2	4.4×10^{-3}

- (A) Electrophilic addition (B) $\text{S}_{\text{N}}1$
(C) $\text{S}_{\text{N}}2$ (D) Electrophilic substitution

77) Which one is a reaction to prepare CCl_2F_2 (Freon-12) from CCl_4 ?

- (A) Wurtz Reaction (B) Finkelstein
(C) Elimination Reaction (D) Swartz Reaction

(Space for Rough Work)

78) How much gram of ethanol is required to obtain 280 ml dihydrogen at S.T.P. by reaction of C_2H_5OH with Na-Metal? (Mol. wt. of ethanol = 46 g/mol).

(A) 2.3

(B) 4.6

(C) 1.15

(D) 0.575

79) Which product is obtained between reaction of CH_3ONa and $(CH_3)_3CBr$?

(A) Only Ether

(B) Only Alkene

(C) Both alkene and ether

(D) Alcohol

80) Which of the following alcohol undergo dehydration reaction with Cu (Copper) metal at 573 K temperature?

(A) Secondary and Tertiary

(B) Primary & Secondary

(C) Primary and Tertiary

(D) Only Tertiary

(Space for Rough Work)