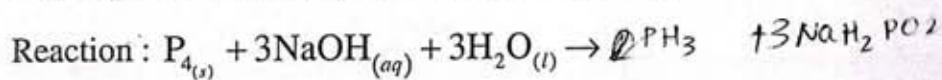


CHEMISTRY

41) Which method is used to get very pure germanium used in semiconductor?

- (A) vapour - phase refining
- (B) electrolysis
- (C) liquation
- (D) zone - refining

42) Which product will be obtained in the following reaction?



- (A) $PH_3 + 3NaH_2PO_2$ ✓
- (B) $PH_3 + 3NaH_2PO_3$ ✗
- (C) $2PH_3 + 3NaH_2PO_2$ ✓
- (D) $2PH_3 + 3NaH_2PO_3$ ✗

43) The molecular formulae for phosgene and tear gas are _____ and _____ respectively.

- (A) $COCl_2$ and CCl_2NO_2 ✗
- (B) $SOCl_2$ and CCl_2NO_2 ✓
- (C) $COCl_2$ and CCl_3NO_2 ✓
- (D) $SOCl_2$ and CCl_3NO_2 ✗

44) Which of the following mixture is called Aquaregia?

- (A) Three parts of dil. HCl and 1 part of conc. HNO_3
- (B) Two parts of conc. HCl and two parts of conc. HNO_3
- (C) Three parts of conc. HCl and 1 part of dil. HNO_3
- (D) Three parts of conc. HCl and 1 part of conc. HNO_3

(Space for Rough Work)

- 45) Which of the following is allylic halide?
(A) (1 - bromo ethyl) benzene HX
(B) Benzyl chloride
(C) 1 - bromo benzene
(D) 3 - chloro cyclo hex-1-ene
- 46) 50% of the reagent is used for dehydrohalogenation of 6.45 gm $\text{CH}_3\text{CH}_2\text{Cl}$.
What will be the weight of the main product obtained?
[At. mass of H, C and Cl are 1, 12 & 35.5 gm/mole⁻¹ respectively]
(A) 1.4 gm (B) 0.7 gm
(C) 2.8 gm (D) 5.6 gm
- 47) Name the following reaction $\text{CH}_3\text{CH}_2\text{Cl} + \text{NaI} \xrightarrow{\text{acetone}} \text{CH}_3\text{CH}_2\text{I} + \text{NaCl}$
(A) Frinkel-stein reaction
(B) Swartz reaction
(C) Wurtz reaction ✓
(D) Hell-Volhard Zelinsky reaction
- 48) Which reagent is used for bromination of methyl phenyl ether?
(A) $\text{Br}_2 / \text{CH}_3\text{COOH}$
(B) $\text{Br}_2 / \text{Red P}$
(C) $\text{Br}_2 / \text{FeBr}_3$
(D) HBr / Δ

(Space for Rough Work)

49) Which of the following acid does not have $-\text{COOH}$ group?

(A) Picric acid ~~✓~~

(B) Ethanoic acid ✓

(C) Benzoic acid

(D) Salicylic acid ✓

50) Which of the following statement is not correct?

(A) Phenol is neutralised by sodium carbonate

(B) Phenol is used to prepare analgesic drugs ✓

(C) Solubility of phenol in water is more than that of chlorobenzene ✓

(D) Boiling point of o-nitrophenol is lower than that of p-nitrophenol

51) Total order of reaction $X + Y \rightarrow XY$ is 3. The order of reaction with respect to X is 2. State the differential rate equation for the reaction.

(A) $-\frac{d[X]}{dt} = K[X]^0[Y]^3$

(B) $-\frac{d[X]}{dt} = K[X]^3[Y]^0$

(C) $-\frac{d[X]}{dt} = K[X]^2[Y]$

(D) $-\frac{d[X]}{dt} = K[X][Y]^2$

52) $X \xrightarrow{\text{Step-I}} Y \xrightarrow[\text{slow}]{\text{Step-II}} Z$ is a complex reaction. Total order of reaction is 2 and Step - II is slow step. What is molecularity of Step-II?

(A) 2

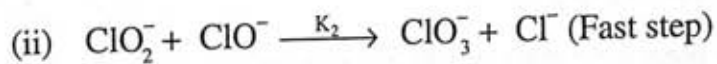
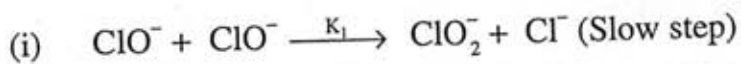
(B) 1

(C) 3

(D) 4

(Space for Rough Work)

53) Reaction $3\text{ClO}^- \rightarrow \text{ClO}_3^- + 2\text{Cl}^-$ occurs in following two steps.



then the rate of given reaction = _____.

(A) $K_1[\text{ClO}^-]$

(B) $K_1[\text{ClO}^-]^2$

(C) $K_2[\text{ClO}_2^-][\text{ClO}^-]$

(D) $K_2[\text{ClO}^-]^3$

54) At given temperature and pressure adsorption of which gas of the following will take place the most?

(A) Di oxygen O_2

(B) Di hydrogen H_2

(C) Ammonia NH_3

(D) Di nitrogen N_2

55) Which type of colloid is the dissolution of sulphur (S_8)?

(A) Micelle

(B) Associated colloid

(C) Multimolecular colloid

(D) Macromolecular colloid

56) For Adsorption phenomenon,

(A) $\Delta H = -ve, \Delta S = +ve$

(B) $\Delta H = +ve, \Delta S = -ve$

(C) $\Delta H = -ve, \Delta S = -ve$

(D) $\Delta H = +ve, \Delta S = +ve$

(Space for Rough Work)

- 61) Which of the following complex is paramagnetic?
- (A) $[\text{Co}(\text{NH}_3)_6]^{3+}$ (B) $[\text{Ni}(\text{CO})_4]$
 (C) $[\text{Ni}(\text{CN})_4]^{2-}$ (D) $[\text{NiCl}_4]^{2-}$
- 62) Both $[\text{Ni}(\text{CO})_4]$ and $[\text{Ni}(\text{CN})_4]^{2-}$ are diamagnetic. The types of hybridisation of Ni in these complexes are _____ & _____ respectively.
- (A) sp^3, dsp^2 (B) sp^3, sp^3
 (C) dsp^2, sp^3 (D) dsp^2, dsp^2 ✓
- 63) Which of the following order of acidic strength is not correct?
- (A) $\text{CH}_3\text{-CH}_2\text{-CH}\cdot\text{COOH} > \text{CH}_3\text{-CH}\cdot\text{CH}_2\text{-COOH} > \text{CH}_2\text{-CH}_2\text{-CH}_2\text{-COOH}$
- (B) $\begin{array}{c} | \\ \text{Cl} \\ \text{Cl}_3\text{-C}\cdot\text{COOH} \end{array} > \begin{array}{c} | \\ \text{Cl} \\ \text{Cl}_2\text{-CH}\cdot\text{COOH} \end{array} > \begin{array}{c} | \\ \text{Cl} \\ \text{Cl}\cdot\text{CH}_2\text{-COOH} \end{array}$
- (C) $\text{H}\cdot\text{COOH} > \text{CH}_3\text{COOH} > \text{C}_6\text{H}_5\text{COOH}$
- (D) $\text{CH}_3\text{COOH} > \text{CH}_3\text{-CH}_2\text{-COOH} > (\text{CH}_3)_2\text{-CH}\cdot\text{COOH}$
- 64) What is the formula of Acrolein?
- (A) $\text{CH}_2 = \text{CH} - \text{CN}$
 (B) $\text{CH}_2 = \text{CH} - \text{CHO}$
 (C) $\text{CH}_2 = \text{CH} - \text{COOH}$
 (D) $\text{CH}_2 = \text{CH} - \text{CONH}_2$

(Space for Rough Work)

65) What is IUPAC name for isophthalic acid?

- (A) Benzene - 1, 2 dicarboxylic acid
(B) Benzene - 1, 3 dicarboxylic acid
(C) Benzene - 1, 4 dicarboxylic acid
(D) Benzene - 1, 5 dicarboxylic acid

66) What is the name for red azo dye?

- (A) β - naphthyl azo benzene
(B) p - hydroxy azo benzene
(C) p - amino azo benzene
(D) p - N, N dimethyl amino azo benzene

67) Which of the following is not formed by Sandmeyer reaction?

- (A) C_6H_5I (B) C_6H_5Cl
(C) C_6H_5Br (D) C_6H_5CN

68) For which vitamin liver is not the source?

- (A) Vitamin - B_2 (B) Vitamin - B_1
 (C) Vitamin - B_{12} (D) Vitamin - H

(Space for Rough Work)

69) In which of the following compound, all the monosaccharide units are not joined by $C_1 - O - C_4$ chain.

(A) Lactose

(B) Maltose

(C) Cellulose

(D) Amylopectin

70) Which of the following polymer is formed by cationic addition polymerisation reaction?

(A) Poly styrene

(B) Butyl rubber

(C) Teflon

(D) PVC

71) Which of the following polymer is used in pigment?

(A) Neoprene

(B) Buna - S

(C) Teflon

(D) Orlon

72) To prevent food from spoilage by microorganism, which substance is used?

(A) Arneto

(B) Aspartame

(C) Salt of sorbic acid

(D) Tetrazine

(Space for Rough Work)

- 73) Which of the following defect is seen in FeO?
- (A) Metal deficiency defect
 - (B) Metal excess defect
 - (C) Displacement defect
 - (D) Impurity defect
- 74) Which of the following substance possess antiferromagnetic property?
- (A) CrO_2
 - (B) Fe_3O_4
 - (C) H_2O
 - (D) MnO
- 75) The boiling points for aqueous solutions of sucrose and urea are same at constant temperature. If 3 gm of urea is dissolved in its 1 litre solution, what is the weight of sucrose dissolved in its 1 litre solution?
[Urea - 60 gm/mole, sucrose = 342 gm/mole]
- (A) 17.1 gram
 - (B) 3.0 gram
 - (C) 6.0 gram
 - (D) 34.2 gram
- 76) Which option is inconsistent for Raoult's law?
- (A) The change in heat of dilution for solution = 0
 - (B) Volume of liquid solvent + volume of liquid solute = volume of solution.
 - (C) Solute does not undergo association in solution
 - (D) Solute undergoes dissociation in solution

(Space for Rough Work)

