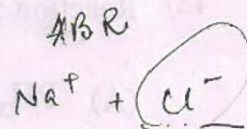


- 45) Which colligative property is more useful to determine the molecular weight of the substances like proteins and polymers?
- (A) Lowering of vapour pressure
 (B) Elevation in boiling point
 (C) Depression of freezing point
 (D) Osmotic pressure
- 46) The resulting solution obtained at the end of electrolysis of concentrated aqueous solution of NaCl _____.
- (A) turns red litmus into blue
 (B) turns blue litmus into red
 (C) remains colourless with phenolphthalein
 (D) the colour of red or blue litmus does not change
- 47) The value of E_{red}° for metal A, B and C are 0.34 Volt, -0.80 Volt and -0.46 Volt respectively. State the correct order for their ability to act as reducing agent.
- (A) $C > B > A$ (B) $A > B > C$
 (C) $B > C > A$ (D) $C > A > B$
- 48) Two electrolytic cells containing molten solutions of Nickel chloride & Aluminium chloride are connected in series. If same amount of electric current is passed through them, what will be the weight of Nickel obtained when 18 gm of Aluminium is obtained? (Al - 27 gm/mole, Ni - 58.5 gm/mole⁻¹)
- (A) 58.5 gm (B) 117 gm
 (C) 29.25 gm (D) 5.85 gm



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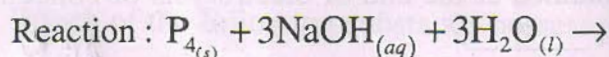


Dhruv Dhani

$$W = \frac{Z}{6500} \times$$

- 49) Which method is used to get very pure germanium used in semiconductor?
- (A) electrolysis
 (B) vapour - phase refining
 (C) liquation
 (D) zone - refining

- 50) Which product will be obtained in the following reaction?



- (A) $PH_{3(g)} + 3Na_2HPO_{2(aq)}$ (B) $PH_{3(g)} + 3NaH_2PO_{2(aq)}$
 (C) $2PH_{3(g)} + 3Na_2HPO_{2(aq)}$ (D) $2PH_{3(g)} + 3NaH_2PO_{2(aq)}$

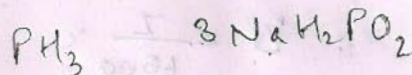
- 51) The molecular formulae for phosgene and tear gas are _____ and _____ respectively.

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

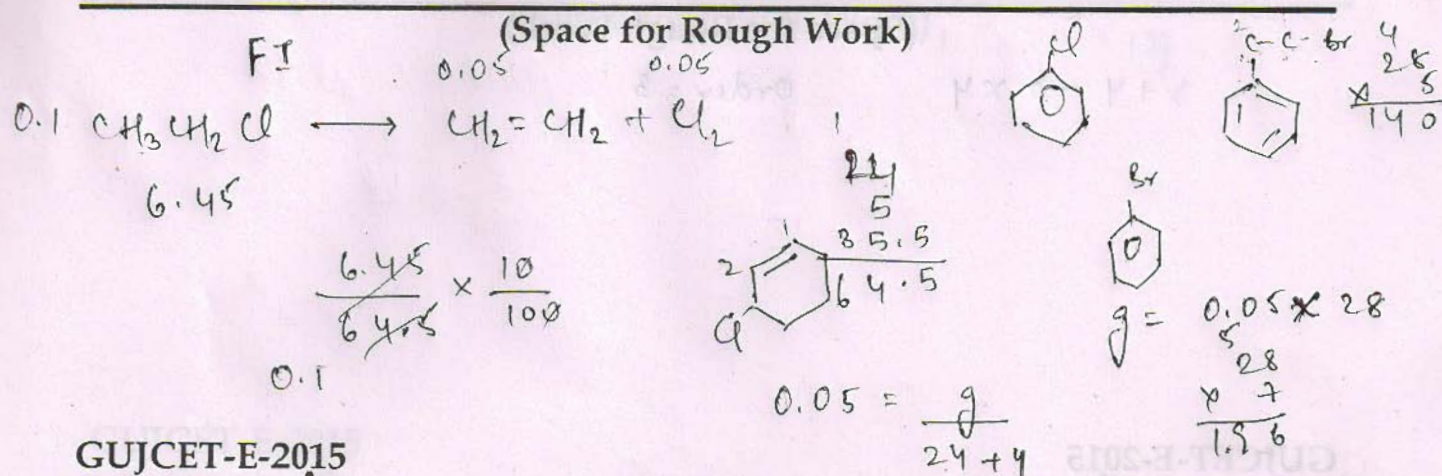
- 52) Which of the following mixture is called Aquaregia?

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



- 53) Which of the following is allylic halide?
 (A) Benzyl chloride
 (B) (1 - bromo ethyl) benzene
 (C) 1 - bromo benzene
 (D) 3 - chloro cyclo hex-1-ene
- 54) 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) 0.7 gm (B) 1.4 gm
 (C) 2.8 gm (D) 5.6 gm
- 55) 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) Swartz reaction
 (B) Frinkel-stein reaction
 (C) Wurtz reaction
 (D) Hell-Volhard Zelinsky reaction
- 56) Which reagent is used for bromination of methyl phenyl ether?
 (A) $\text{Br}_2 / \text{Red P}$
 (B) $\text{Br}_2 / \text{CH}_3\text{COOH}$
 (C) $\text{Br}_2 / \text{FeBr}_3$
 (D) HBr / Δ



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

- (A) Ethanoic acid
(B) Picric acid
(C) Benzoic acid
(D) Salicylic acid

58) Which of the following statement is not correct?

- (A) Phenol is used to prepare analgesic drugs
(B) Phenol is neutralised by sodium carbonate
(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

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

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

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

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

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

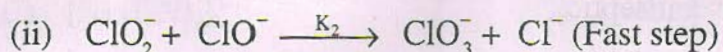
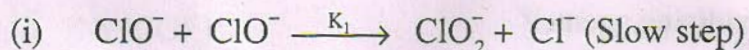
- (A) 1
(B) 2
(C) 3
(D) 4

(Space for Rough Work)



Order = 3

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



then the rate of given reaction = _____.

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

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

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

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

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

(A) Di hydrogen 2

(B) Di oxygen 32

(C) Ammonia 17

(D) Di nitrogen 28

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

(A) Associated colloid

(B) Micelle

(C) Multimolecular colloid

(D) Macromolecular colloid

64) 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)

17

- 65) Which of the following statement is incorrect for KMnO_4 ?
- (A) It is an oxidising agent. ✓
(B) It is used as antiseptic. ✓
(C) It is used as bleaching agent in textile industries.
(D) It is dark purple coloured amorphous substance. ✓
- 66) Which of the following ion has the maximum theoretical magnetic moment?
- (A) Fe^{3+} (B) Cr^{3+}
(C) Ti^{3+} (D) Co^{3+}
- 67) Which of the following oxide has the maximum basicity?
- (A) La_2O_3 (B) Pr_2O_3
(C) Sm_2O_3 (D) Gd_2O_3
- 68) Which of the following spectrochemical series is true?
- (A) $\text{SCN}^- < \text{NH}_3 < \text{F}^- < \text{en} < \text{CO}$
(B) $\text{SCN}^- < \text{F}^- < \text{NH}_3 < \text{en} < \text{CO}$
(C) $\text{SCN}^- < \text{F}^- < \text{en} < \text{NH}_3 < \text{CO}$
(D) $\text{SCN}^- < \text{F}^- < \text{en} < \text{CO} < \text{NH}_3$

(Space for Rough Work)

69) Which of the following complex is paramagnetic?

- (A) $[\text{Ni}(\text{CO})_4]$ (B) $[\text{Co}(\text{NH}_3)_6]^{3+}$
 (C) $[\text{Ni}(\text{CN})_4]^{2-}$ (D) $[\text{NiCl}_4]^{2-}$

70) 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, sp^3 (B) sp^3, dsp^2
 (C) dsp^2, sp^3 (D) dsp^2, dsp^2

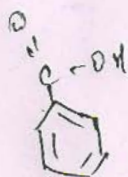
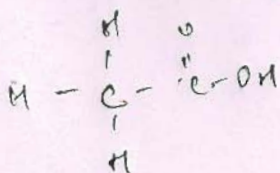
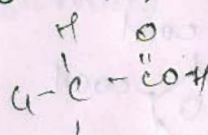
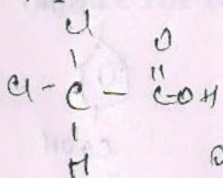
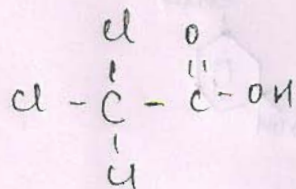
71) Which of the following order of acidic strength is not correct?

- (A) $\text{Cl}_3\text{C}\cdot\text{C}\cdot\text{COOH} > \text{Cl}_2\cdot\text{CH}\cdot\text{COOH} > \text{Cl}\cdot\text{CH}_2\cdot\text{COOH}$ Basicity ↑,
Acidic ↓
 (B) $\text{CH}_3\cdot\text{CH}_2\cdot\underset{\text{Cl}}{\text{CH}}\cdot\text{COOH} > \text{CH}_3\cdot\underset{\text{Cl}}{\text{CH}}\cdot\text{CH}_2\cdot\text{COOH} > \text{CH}_2\cdot\underset{\text{Cl}}{\text{CH}_2}\cdot\text{CH}_2\cdot\text{COOH}$
 (C) $\text{H}\cdot\text{COOH} > \text{CH}_3\overset{\text{Cl}}{\text{C}}\text{OOH} > \text{C}_6\text{H}_5\text{COOH}$
 (D) $\text{CH}_3\text{COOH} > \text{CH}_3\cdot\text{CH}_2\cdot\text{COOH} > (\text{CH}_3)_2\text{CH}\cdot\text{COOH}$

72) What is the formula of Acrolein?

- (A) $\text{CH}_2 = \text{CH} - \text{CHO}$
 (B) $\text{CH}_2 = \text{CH} - \text{CN}$
 (C) $\text{CH}_2 = \text{CH} - \text{COOH}$
 (D) $\text{CH}_2 = \text{CH} - \text{CONH}_2$

(Space for Rough Work)



Branching ↑,
basicity ↑.

73) What is IUPAC name for isophthalic acid?

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

74) What is the name for red azo dye?

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

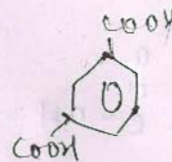
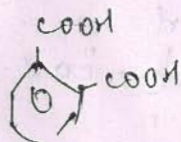
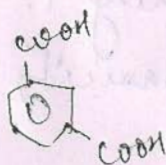
75) Which of the following is not formed by Sandmeyer reaction?

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

76) For which vitamin liver is not the source?

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

(Space for Rough Work)



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

- (A) Maltose (B) Lactose
(C) Cellulose (D) Amylopectin

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

- (A) Butyl rubber ~~(B)~~ Poly styrene
(C) Teflon (D) PVC

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

- (A) Buna - S ~~(B)~~ Neoprene
(C) Teflon (D) Orlon

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

- ~~(A)~~ Aspartame (B) Arneto
(C) Salt of sorbic acid (D) Tetrazine

(Space for Rough Work)