

CHEMISTRY

- 41) How much electricity in terms of Faraday is required to produce 40.0 g of Al from molten Al_2O_3 ?

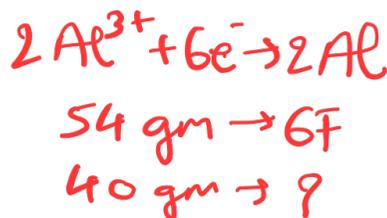
Ch-2

(A) 4.44 F

(B) 4.14 F

(C) 8.88 F

(D) 8.14 F



- 42) According to Arrhenius equation in graph of $\log k \rightarrow \frac{1}{T}$, the slope will be _____.

(A) $-\frac{E_a}{R}$

(B) $\frac{E_a}{R}$

$$\log k = \log A - \frac{E_a}{2.303RT}$$

(C) $-\frac{E_a}{2.303R}$

(D) $\frac{E_a}{2.303R}$

- 43) Rate constant $k = 4.5 \times 10^{-7} \text{ L}^2 \text{ mol}^{-2} \text{ s}^{-1}$, then what is the order of reaction?

(A) 0

(B) 3

(C) 2

(D) 4

Formula Based

(Space for Rough Work)



44) When the value of rate constant (k) is 2.0 min^{-1} , then what will be half time of reaction ($t_{1/2}$) in seconds?

(A) 34.4

(B) 24.6

(C) 30.2

(D) 20.8

$$t_{1/2} = \frac{0.693}{k}$$

45) The rate of the chemical reaction doubles for an increase of 10 K in absolute temperature from 298 K. What will be the activation energy?

(A) 52.897 kJ mol⁻¹

(B) 51.897 kJ mol⁻¹

(C) 42.897 kJ mol⁻¹

(D) 41.897 kJ mol⁻¹

$$T_1 = 298 \text{ K}$$
$$T_2 = 308 \text{ K}$$
$$k_2 = 2k_1$$
$$E_a = ?$$

$$\log \frac{k_2}{k_1} = \frac{E_a}{2.303R} \left[\frac{1}{T_1} - \frac{1}{T_2} \right]$$

46) Which of the following metal does not liberate H₂ gas by reacting with HCl?

(A) Co

(B) Cu

(C) Ni

(D) Zn

Theory Based

(Space for Rough Work)



47) Which of the following ion has highest magnetic moment value?

Ch-4

(A) Cr^{2+}

$n=4$

(B) Ni^{2+}

$n=3$

(C) Cu^{2+}

$n=1$

(D) Co^{2+}

$n=3$

$$\mu = \sqrt{n(n+2)}$$

48) Which catalyst is used in Wacker process?

(A) CdCl_2

(B) ZnCl_2

Theory Based

Ch-4

(C) PbCl_2

(D) PdCl_2

49) What is the true IUPAC name of $\text{Hg}[\text{Co}(\text{SCN})_4]$ coordination compound?

(A) Mercury (I) tetrathiocyanato - S - cobaltate (III)

(B) Mercury (II) tetrathiocyanato - N - cobaltate (II)

Theory Based

Ch-5

(C) Mercury (I) tetrathiocyanato - S - cobalt (III)

(D) Mercury (I) tetrathiocyanato - N - cobalt (III)

(Space for Rough Work)

50) Which of the following statement is not applicable to Valence Bond Theory?

(A) It does not give quantitative interpretation of magnetic data.

(B) It does not distinguish between weak and strong ligands.

(C) It explains the colour exhibited by coordination compounds.

(D) It does not make exact predictions regarding the structures of 4-coordinate complexes.

Theory
Based

Ch-5

51) In potassium trioxalatoaluminate (III), what are the primary and secondary valency of central atom respectively?

(A) 3, 6

(B) 3, 3

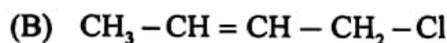
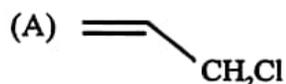
(C) 6, 3

(D) 6, 6

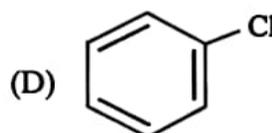
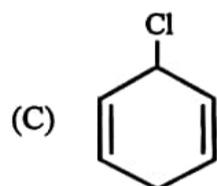


Ch-5

52) Which of the following compound is not allylic chloride?



Ch-6



Theory
Based

(Space for Rough Work)

YJD72(05)

[21]

(P.T.O.)

53) A mixture of an alkyl halide and aryl halide with sodium in dry ether. What is the name of reaction?

Ch-6

(A) Fittig reaction

(B) Finkelstein reaction

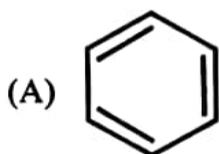
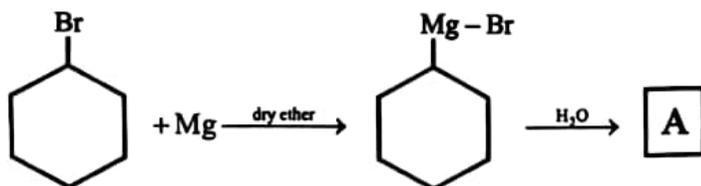
(C) Wurtz - Fittig reaction

(D) Wurtz reaction

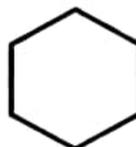
Theory Based

54) Identify 'A' in the following reaction.

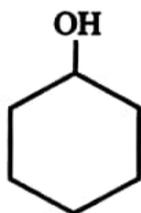
Ch-6



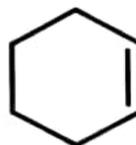
(B)



(C)



(D)



Theory Based

55) By which reaction Freon-12 is manufactured from tetrachloromethane?

Ch-6

(A) Finkelstein reaction

(B) Grignard reaction

(C) Stephen reaction

(D) Swarts reaction

Theory Based

(Space for Rough Work)



56) Which of the following compound has chiral carbon atom?

Ch-6

(A) 2-chlorobutane



(B) 2,2-dichlorobutane

(C) 1-chlorobutane

(D) 2-chloro 2-methylpropane

57) Which of the following reagent is not use in qualitative and quantitative chemical analysis?

Ch-5

(A) EDTA

(B) Cupron

(C) DMG

(D) D-penicillamine

Theory Based

58) What is the IUPAC name of methyl isopropyl ether?

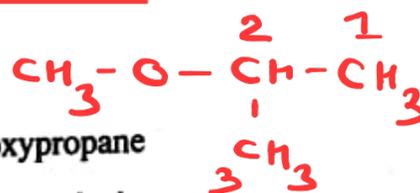
Ch-7

(A) 2-methoxypropane

(B) 1-methoxypropane

(C) Ethoxyethane

(D) Methyl propyl ether



59) Which of the following compound gives only primary alcohol on reaction with Grignard Reagent (RMgX)?

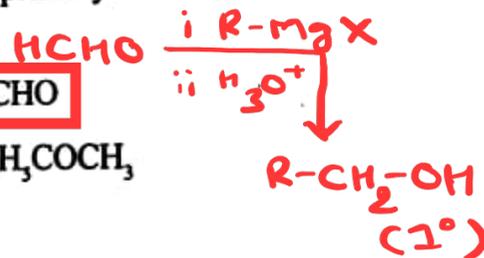
Ch-7

(A) $\text{CH}_3\text{CH}_2\text{CHO}$

(B) HCHO

(C) $\text{CH}_3\text{CH}_2\text{COCH}_3$

(D) $\text{C}_6\text{H}_5\text{COCH}_3$



60) Which product is not obtained when $\text{CH}_3\text{CH}_2\text{OH}$ react with H_2SO_4 ?

Ch-7

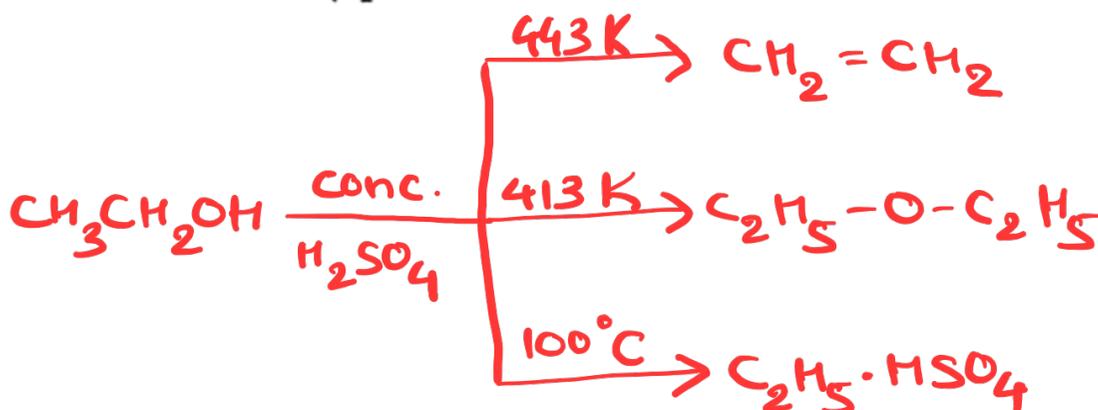
(A) $\text{CH}_2=\text{CH}_2$

(B) $\text{CH}\equiv\text{CH}$

(C) $\text{C}_2\text{H}_5\text{OC}_2\text{H}_5$

(D) $\text{C}_2\text{H}_5\cdot\text{HSO}_4$

(Space for Rough Work)



YJD72(05)

[23]

(P.T.O.)

61) Which reaction is used to prepare 2-hydroxy benzaldehyde from phenol?

Ch-7

(A) Reimer-Tiemann reaction

(B) Kolbe's reaction

(C) Williamson synthesis

(D) Etard's reaction

Theory Based

62) What is the IUPAC name of the Mesityl oxide?

Ch-8

(A) 3-methylpent-4-en-2-one

(B) 4,4-dimethylbut-3-en-2-one

(C) 4-methylpent-3-en-2-one

(D) 1-methylpent-2-en-4-one



63) $\text{CH}_3\text{COOH} \xrightarrow{\text{LiAlH}_4} \text{X} \xrightarrow{\text{PCl}_5} \text{Y} \xrightarrow[\text{KOH}]{\text{Alcoholic}} \text{Z}$. Find product 'Z', in above reaction.

Ch-8

(A) Ethyne

(B) Ethanol

(C) Ethene

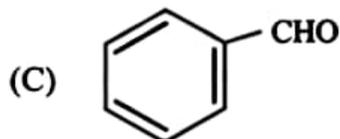
(D) Ethanal



64) Which of the following aldehyde does not give Cannizzaro reaction?

(A) HCHO

(B) CCl_3CHO



(D) $\text{CH}_3\text{CH}_2\text{CHO}$

Theory Based

Ch-8

(Space for Rough Work)

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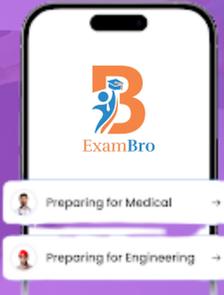


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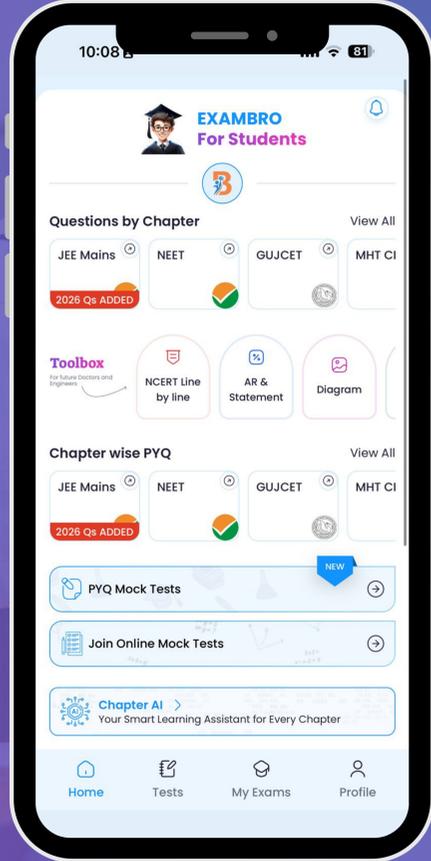
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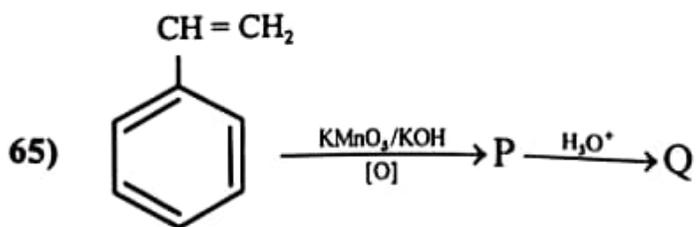
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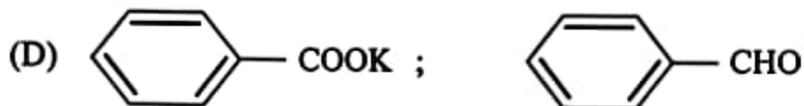
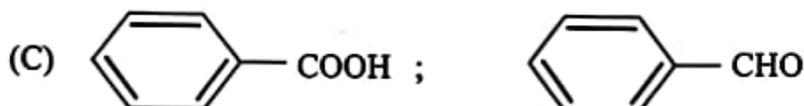
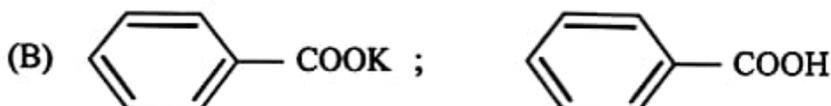
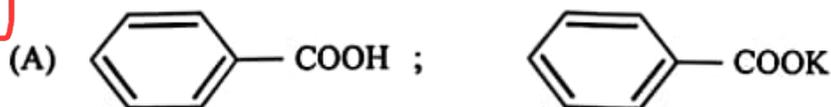
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Theory Based

Identify P and Q in above reaction respectively.

Ch-8



66) Which of the following compound is used for production of Nylon-6, 6?

Ch-8

(A) Adipic acid

(B) Succinic acid

(C) Malonic acid

(D) Glutaric acid

Theory Based

[uses of carboxylic acid]

(Space for Rough Work)

67) Which of the following statement is true for the Benzenediazonium fluoroborate?

(A) When it heated with NaNO_2 in presence of Cu, it gives aniline.

(B) On heating, it does not decompose to yield fluorobenzene.

(C) It is water insoluble and stable at room temperature.

(D) It is water soluble and unstable at room temperature.

Theory
Based

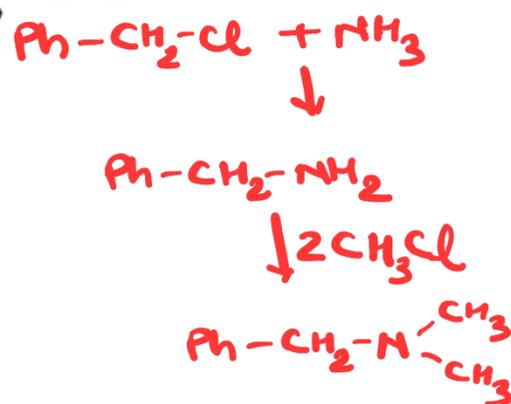
68) What will be the name of product on ammonolysis of benzyl chloride and reaction of amine so formed with two moles of CH_3Cl ?

(A) N, N-dimethylphenylmethanamine

(B) N, N-diphenylmethanamine

(C) N, N-diphenylethanamine

(D) N-methyl, N-phenylmethanamine



69) What is the correct order of basic strength in substituted amine in aqueous solution?

(A) $\text{NH}_3 > \text{C}_2\text{H}_5\text{NH}_2 > (\text{C}_2\text{H}_5)_3\text{N} > (\text{C}_2\text{H}_5)_2\text{NH}$

(B) $(\text{C}_2\text{H}_5)_3\text{N} > (\text{C}_2\text{H}_5)_2\text{NH} > \text{C}_2\text{H}_5\text{NH}_2 > \text{NH}_3$

(C) $(\text{C}_2\text{H}_5)_2\text{NH} > (\text{C}_2\text{H}_5)_3\text{N} > \text{C}_2\text{H}_5\text{NH}_2 > \text{NH}_3$

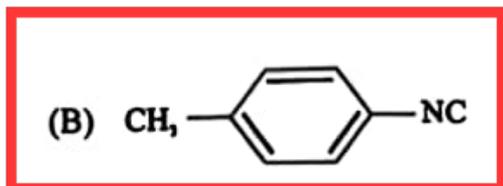
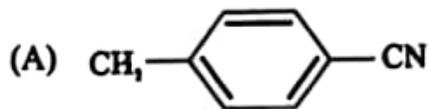
(D) $\text{NH}_3 > \text{C}_2\text{H}_5\text{NH}_2 > (\text{C}_2\text{H}_5)_2\text{NH} > (\text{C}_2\text{H}_5)_3\text{N}$

Theory
Based

(Space for Rough Work)

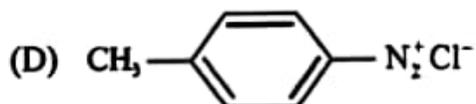
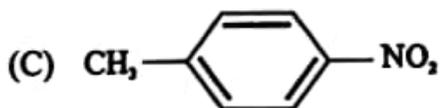


70) Which product is formed on carbylamine reaction with 4-methylaniline?



Theory
Based

ch-9



71) Which of the following is not polysaccharide?

ch-10

(A) Ribose

(B) Starch

Theory
Based

(C) Gum

(D) Glycogen

(Space for Rough Work)

72) Which of the following disease occur due to deficiency of pyridoxine?

Ch-10

(A) Cheilosis

(B) Beri beri

(C) Scurvy

(D) Convulsions

Theory
Based

73) Which of the following hormone is responsible for development of secondary female characteristics and participates in the control of menstrual cycle?

Ch-10

(A) Glucagon

(B) Testosterone

(C) Progesterone

(D) Estradiol

Theory
Based

74) The molarity of solution containing 15 g of NaOH in 900 ml solution will be _____.

Ch-1

(A) 0.42 M

(B) 0.042 M

(C) 4.2 M

(D) 42.0 M

Formula
Based

(Space for Rough Work)



75) For the ideal solutions, which of the following condition is suitable?

(A) $\Delta_{\text{mix}} H \neq 0; \Delta_{\text{mix}} V \neq 0$

(B) $\Delta_{\text{mix}}^* H = 0; \Delta_{\text{mix}} V = 0$

(C) $\Delta_{\text{mix}}^* H \neq 0; \Delta_{\text{mix}} V = 0$

(D) $\Delta_{\text{mix}} H = 0; \Delta_{\text{mix}} V \neq 0$

Ch-2

Theory Based

76) Calculate the mass of ascorbic acid ($C_6H_8O_6$) to be dissolved in 75 g of acetic acid to lower its melting point by 1.5°C . [$K_f = 3.9 \text{ K kg mol}^{-1}$, H = 1, C = 12, O = 16 amu]

(A) 5.770 g

(B) 4.077 g

(C) 5.077 g

(D) 4.770 g

$w_1 = 75 \text{ gm}$

$w_2 = ?$

$M_2 = 176 \text{ gm/mol}$

$\Delta T_f = 1.5^\circ\text{C}$

$K_f = 3.9 \text{ K kg mol}^{-1}$

$$\Delta T_f = K_f \cdot \frac{w_2 \times 1000}{M_2 \times w_1}$$

77) Which of the following solutions will show negative deviation from Raoult's law?

(A) Chloroform + Acetone

(B) Benzene + Toluene

(C) Ethanol + Acetone

(D) Bromoethane + Chloroethane

Ch-2

Theory Based

(Space for Rough Work)

78) Which of the following metal is behave as weakest reducing agent?

$$E^\circ_{(Li^+/Li)} = -3.05 \text{ V}, \quad E^\circ_{(Au^3+/Au)} = 1.40 \text{ V}$$

$$E^\circ_{(Ag^+/Ag)} = 0.80 \text{ V}, \quad E^\circ_{(Mg^{2+}/Mg)} = -2.36 \text{ V}$$

- (A) Li (B) Ag
(C) Au (D) Mg

Theory
Based

79) Which of the following statement is not true for fuel cell?

(A) Converting fuel energy directly into electrical energy.

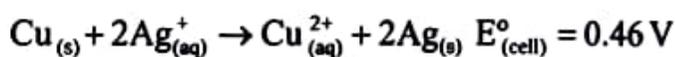
(B) Water produced during reaction, can not be used for drinking.

(C) The reaction of hydrogen with oxygen to form water.

(D) They are pollution free.

Theory
Based

80) Calculate the equilibrium constant of the following reaction :



- (A) 3.92×10^{14} (B) 4.92×10^{13}
(C) 4.92×10^{14} (D) 3.92×10^{15}

$$nFE^\circ = 2.303 RT \log K$$

$$\therefore K =$$

$$\text{Antilog } \frac{nFE^\circ}{2.303RT}$$

$$= \text{Antilog } \frac{nE^\circ}{0.059}$$

(Space for Rough Work)

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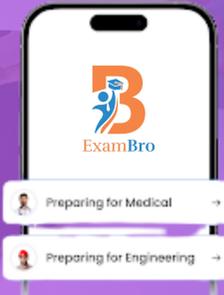


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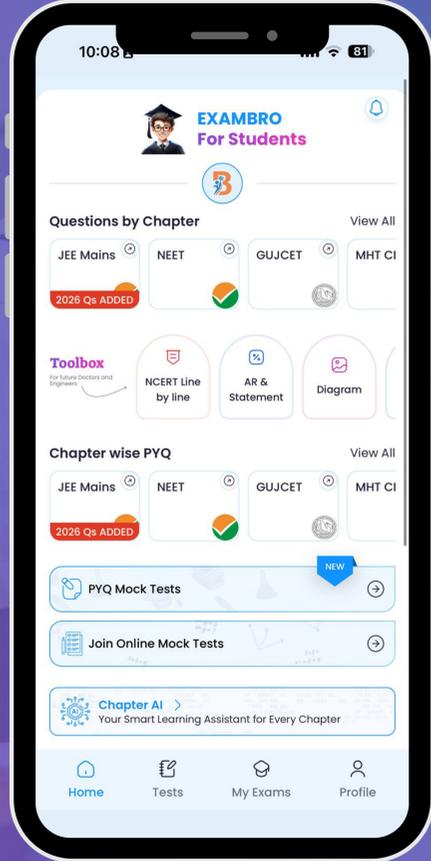
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