CHEMISTRY QUESTION PAPER

Time : 2 Hrs. Max. Marks : 40

Q. 1 Select and write the most appropriate answer from the given alternatives for each sub-question. [8]

(i) ISO-propylindene dichloride on alkaline hydrolysis gives – (1)
(a) Propan-2-ol (b) Propanone
(c) Propanal (d) Propanoic acid

(ii) Which of the following compounds shows optical activity – (1)
(a) n-butyl chloride (b) iso-butyl chloride
(c) sec-butyl chloride (d) t-butyl chloride

(iii) The gas evolved, when ethyl alcohol reacts with sodium metal is – (1)
(a) Cl_2 (b) N_2
(c) H_2 (d) O_2

(iv) The conjugated protein among the following is – (1)
(a) Albumin (b) Haemoglobin
(c) Keratin (d) Peptone

(v) Lanthanides belong to – (1)
(a) Group–1 (b) Group–2
(c) Group–3 (d) Group–4

(vi) Identify the drugs used to lower down the body temperature – (1)
(a) Analgesics (b) Antibiotics
(c) Anaesthetics (d) Antipyretics

(vii) ISO-propyl amine is an example of – (1)
(a) Primary amines (b) Secondary amines
(c) Tertiary amines (d) Branched amines

(viii) How many acids and esters can be represented for the molecular formula $C_3H_6O_2$? (1)
(a) 1 acid and 1 ester (b) 1 acid and 2 esters
(c) 2 acids and 2 esters (d) 2 acids and 1 ester

Q. 2 (A) Answer any ONE : [8]

(i) Write expected electronic configurations of (2)
(a) Nd (Z = 60) (b) Tm (Z = 69)

(ii) Classify the following into electrophile and nucleophile.
(a) NO_2^+ (b) NH_3
(c) BF_3 (d) NH_4^+ (2)

(B) Answer any ONE :

(i) How is Nylone - 66 prepared ? (2)

(ii) How is Apirin prepared ? Write it's two uses. (2)

(C) Answer the following :

(i) How is ethyl acetate obtained from – (2)
(a) Silver acetate (b) Acetic acid ?

(ii) Define the terms :
(a) Simple protein (b) Fibre (2)

Q. 3 (A) Answer any ONE : [8]

(i) How are the following compounds prepared from diazomethane ?
(a) Dimethyl ether
(b) Ethyl methyl ether
Write structures of enantiomers of lactic acid. (3)

(ii) Convert the following :
(a) Acetone into pinacol
(b) Formaldehyde into urotropine (3)

(B) Attempt any ONE :

(i) What is the action of the following reagents on ethanol ? **(3)**

(a) Thionyl chloride

(b) Mixture of red phosphorus and bromine

(c) Acidified potassium dichromate ?

(ii) Why is chloroform stored in dark coloured bottles ?

What happens when ethyl methyl ether is hydrolysed by using dil. H_2SO_4 **(3)**

(C) Answer the following :

Explain : Hardening of oil. **(2)**

Q. 4 (A) Answer the following : **[8]**

Write molecular formulae and IUPAC names of the compounds represented by $C_2H_4Cl_2$?

Give one chemical test to distinguish between them. **(4)**

(B) Attempt any ONE of the following :

(i) How is carbonyl group converted into –

(a) $-CH_2OH$ (b) $-\overset{|}{\underset{|}{C}}H-OH$

(c) $-CH_2-$ (d) $-\overset{|}{\underset{|}{C}}-OH$ **(4)**

(ii) How is carbolic acid prepared from benzene sulphonic acid ?

What is the action of conc. H_2SO_4 on phenol at 373 K ? **(4)**

Q. 5 (A) Attempt any ONE : **[8]**

(i) Draw energy profile diagram of SN^2 reaction and explain the following terms.

(a) Transition state (b) Heat of reaction

(c) Energy of activation. **(4)**

(ii) How is ethyl amine prepared from –

(a) Nitro alkane (b) Oxime

Explain basic nature of Amines. **(4)**

(B) Attempt any Two :

(i) How is acetic acid converted into

(a) Acetamide

(b) Acetic anhydride **(2)**

(ii) Classify the following carbohydrates –

(a) Cellulose (b) Maltose

(c) Raffinose (d) Fructose **(2)**

(iii) Explain why, $_{63}Eu$ and $_{70}Yb$ show + 2 oxidation state. **(2)**