

# 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.

- (i) Which of the following is used as an antiseptic ? (1)
  - (a) Bleaching powder
  - (b) Thymol
  - (c) Tincture iodine
  - (d) Chloroform
- (ii) In esterification reaction, conc.  $H_2SO_4$  acts as ..... (1)
  - (a) Dehydrating agent
  - (b) Catalyst
  - (c) Hydrating agent
  - (d) Suphonating agent
- (iii) Which of the following amines give yellow oily liquid with nitrous acid ? (1)
  - (a) Ethyl amine
  - (b) Methyl amine
  - (c) Diethyl amine
  - (d) Triethyl amine
- (iv) Ethanol and phenol are distinguished from each other by the action of - (1)
  - (a) Neutral ferrous chloride
  - (b) Neutral ferric chloride
  - (c) Ferric hydroxide
  - (d) Ferrous hydroxide
- (v) Which of the following is correct about  $SN^2$  mechanism ? (1)
  - (a) Two step reaction
  - (b) Complete inversion of configuration
  - (c) Formation of carbonium ion
  - (d) Favoured by polar solvent
- (vi)  $A + B \xrightarrow{\text{dry ether}} \text{Complex} \xrightarrow{H_2OH^+} \text{Ethyl Methyl Ketone.}$   
 In above reaction, A and B are : (1)
  - (a) Formonitril, Propyl magnesium bromide.
  - (b) Ethyl cyanide, Ethyl magnesium bromide.
  - (c) Hydrogen cyanide, Ethyl magnesium bromide.
  - (d) Acetonitrile, Ethyl magnesium bromide.
- (vii) Colour of tripositive ion of Lanthanides are due to ..... (1)
  - (a) Lanthanide contraction
  - (b) Number of unpaired electrons of 4 orbitals
  - (c) Their Catalytic Properties
  - (d) Uniform + 3 oxidation state.
- (viii) Which of the following is not true about Glucose ? (1)
  - (a) It is monosaccharide.
  - (b) It is polyhydroxy aldehyde.
  - (c) It is polyhydroxy ketone.
  - (d) It contains six carbon atoms.

**Q. 2 (A) Attempt any One :**

- (i) How will you convert glucose into - (a) Gluconic acid, (b) Saccharic acid. (2)
- (ii) What are antibiotics ? What is the difference between bactericidal and bacteriostatic antibiotics ? (2)

**(B) Attempt any One :**

- (i) Why does basicity of hydroxides of lanthanides decrease with increase in atomic number ? (2)
- (ii) State and explain Markownikoff's Rule with a suitable example. (2)

**(C) Answer the following:**

- (i) From methyl magnesium iodide how ethanol and propan-2-ol are prepared ? (2)
- (ii) What is the action of ammonia on - (a) Acetaldehyde, (b) Formaldehyde. (2)

**Q. 3 (A) Answer any One :**

- (i) What are synthetic fibres ? How is terylene prepared ? (3)
- (ii) Define asymmetric carbon atom and explain optical activity of 2-chlorobutane. (3)

**(B) Answer any One :**

- (i) What is the action of the following on phenol - (a) Bromine in  $CS_2$ , (b) Conc.  $HNO_3$  in presence of conc.  $H_2SO_4$  (c) Conc.  $H_2SO_4$  at room temperature ? (3)
- (ii) How will you prepare ethanol from 1, 1-Dichloroethane ?  
 What is the reaction of acetaldehyde with - (a) Ammonical silver nitrate, (b) Fehling's solution. (3)

**(C) Answer the following :**

- How will you prepare diethyl ether by continuous etherification process ? (2)

**Q. 4 (A) Answer the following :**

Explain the terms – (1) Heterolytic fission, (2) Electromeric effect. (4)

**(B) Answer any One of the following :**

(i) How will you bring about following conversions ? (4)

(a) Acetic acid to acetyl chloride (b) Methyl cyanide to acetic acid (c) Acetyl chloride to ethyl acetate (d) Ethyl iodide to ethyl acetate

(ii) What are amines ? What is the action of acetyl chloride on ethanamine, N-Ethylethanamine and N, N-Dimethylethanamine ? (4)

**Q. 5 (A) Attempt any One :**

(i) What are ethers ? Classify proteins on the basis of hydrolysis products & give example (4)

(ii) How will you prepare trichloromethane from ethanol ? (4)

**(B) Attempt any Two :**

(i) What is the action of following on 2-methylpropan-2-ol-

(a) 20%  $\text{H}_2\text{SO}_4$  at 363K, (b) NaBr and Conc.  $\text{H}_2\text{SO}_4$ . (2)

(ii) Write a note on Cannizzaro's reaction. (2)

(iii) Write the outer observed electronic configuration of :

(a) Gadolinium (64), (b) Ytterbium (70) (2)