17326

21718

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

Marks

1. Answer any TEN : **10 × 2 = 20**

(a) What do you mean by heterogeneous reaction ? Give one example.

(b) Define organic compound. Classify carbon as organic or inorganic.

(c) List four types of chemical bonds.

(d) Polyethylene has 50 repeat units, write its empirical formula and find its molecular weight.

(e) Name any four aromatic compounds.

(f) Write boiling point of pure benzene. Comment on its toxicity.

(g) Write the two IUPAC rules for naming alcohols.

(h) Define addition reaction with respect to organic reaction. Give one example.

(i) Define a nucleophile. Give an example.

(j) Which is the catalyst used during sulphonation reaction ?

(k) Define 'isomerism'. Name isomers of butyl alcohol.

(l) Define asymmetric carbon atom with an example.

2. Answer any FOUR : **4 × 4 = 16**

(a) State any four important properties of ionic bond. Give an example of ionic bond.

(b) State any four general characteristics of organic compounds.

(c) Explain with examples, classification of organic compounds based on structure.

(d) Describe condensation reaction. Give an example.

(e) What is nitration reaction ? Explain it with an example.

(f) Explain halogenation reaction with an example.

3. Answer any FOUR : **4 × 4 = 16**

(a) State any four major properties of covalent bond. Give an example of covalent bond.

(b) Give any four important points of comparison between empirical and molecular formula of organic compound.

(c) State any four general characteristics of aliphatic compound.

(d) Explain Friedel Craft alkylation reaction with an example.

(e) Explain oxidation reaction with an example.

(f) Explain optical isomerism with an example.

4. Answer any FOUR : **4 × 4 = 16**

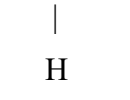
(a) Explain importance of organic chemistry.

(b) Classify, giving examples of organic compounds on the basis of their functional groups.

(c) Give the structural formula of any four alkyl halides.

(d) Identify the following functional groups :

(i) — C = O

(ii)


(iii) — OH

(iv) — O —

(e) State any four chemical properties of benzene.

(f) Describe the nucleophilic reaction with an example.

5. Answer any FOUR : **4 × 4 = 16**

(a) Percentage composition of an organic substance as determined by analysis was C = 14.5, H = 1.8, O = 19.24 and C*l* = 64.46. Calculate the empirical formula. A.W. H = 1, C = 12, O = 16, C*l* = 35.5.

(b) Describe substitution reaction in benzene.

(c) Explain electrophilic reaction with an example.

(d) Explain with example geometric isomerism.

(e) Represent carboxylic acid group. Give the structural formula of any three carboxylic acids.

(f) Explain the terms :

(i) Plane polarised light

(ii) Racemic mixture.

P.T.O.

6. Answer any FOUR : **4 × 4 = 16**

(a) Explain with examples the co-ordinate bond.

(b) Explain the concept of empirical and molecular formula.

(c) Describe hydrogenation reaction of benzene, stating reaction conditions and type of catalyst used.

(d) Name and give any four structural formula of ketones.

(e) What is stereochemistry ? State its importance.

(f) Write the structural formula of

(i) acetone

(ii) ethyl bromide

(iii) ethanol

(iv) methyl carboxylic acid