

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH 2012

(CCSS)

Chemistry—Core Course

CH 6B 16—Core Course IX—ORGANIC CHEMISTRY—III

Three Hours

Maximum : 30 Weightage

I. Multiple choice and fill in the blanks type questions. Answer all *twelve* questions :

- 1 Paper chromatography involves _____.
(a) Adsorption. (b) Partition.
(c) both of the above. (d) None of the above.
- 2 Carbyl amine reaction is a diagnostic test for a _____.
(a) Secondary amine. (b) tertiary amine.
(c) primary amine. (d) All of the above.
- 3 Oils and fats differ mostly in _____.
- 4 Soft soap generally contains _____.
(a) KOH. (b) NaOH.
(c) Ca(OH)_2 . (d) All of the above.
- 5 Nitrosation of tertiary amines with nitrous acid is an example of _____ substitution reaction.
(a) Electrophilic. (b) Nucleophilic.
(c) Free radical. (d) All of the above.
- 6 Which of the following is a non-reducing sugar ?
(a) Glucose. (b) Lactose.
(c) Maltose. (d) Sucrose.
- 7 Green synthesis involves _____.
(a) Enzymes. (b) Excess of solvents.
(c) Excess of reagents. (d) High temperature.
- 8 Carbohydrates are characterised by the presence of _____.
(a) OH groups. (b) Carbonyl groups.
(c) Chiral carbons. (d) All of the above.

Turn over

- 9 Which one of the following amino acid is not optically active ?
 (a) Alanine. (b) Valine.
 (c) Isoleucine. (d) Glycine.
- 10 Which one among the following is a globular protein ?
 (a) Insulin. (b) Collagen.
 (c) Fibroin. (d) Myosin.
- 11 A group that deepens the colour of a dye is called _____.
- 12 Which among the following is most basic ?
 (a) Furan. (b) Pyrrole.
 (c) Piperidine. (d) All are equally basic.

(12 × ¼ = 3 weightage)

II. Short Answer type questions. Answer *all* nine questions :

- 13 Explain any *two* principles of green chemistry.
- 14 Draw the resonance structures of pyridine.
- 15 Why nitromethane reacts with NaOH ?
- 16 Draw the structure of malachite green.
- 17 What are the heterocyclic bases present in RNA ?
- 18 Why is Guanidine basic ?
- 19 Draw the cyclic structure of α-Glucose.
- 20 How is acetone differentiated from acetaldehyde using IR spectroscopy ?
- 21 Predict the possible electronic excitations in methyl vinyl Ketone. Explain.

(9 × 1 = 9 weightage)

III. Short essay or paragraph questions. Answer any *five* questions :

- 22 A compound C_2H_5Br showed two peaks—a quartet at $\delta 3.5$ and a triplet at $\delta 1.5$ in the ratio 2 : 3. Identify the compound with sufficient reasoning.
- 23 How will you interconvert glucose and fructose ?
- 24 Explain any method of sequencing of peptides.
- 25 Describe briefly the Hinsberg's method of separation of amines.
- 26 Explain the Watson-Crick model of DNA.
- 27 Comment on the reduction products of nitrobenzene in basic and neutral conditions.
- 28 Outline the synthesis of alizarin.

(5 × 2 = 10 weightage)

IV. Essay questions. Answer any *two* questions :

- 29 Discuss in detail the various aspects of 'Green synthesis' and comment on microwave assisted organic synthesis and ultrasound assisted reactions.
- 30 Explain the synthesis and applications of any *two* active methylene compounds.
- 31 Discuss a method of preparation of quinoline and indole. Explain any *two* reactions of each of them.

(2 × 4 = 8 weightage)