

## SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH 2012

(CCSS)

Chemistry—Core Course

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

Time : 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)  $\text{Ca(OH)}_2$ . (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 x 3 = 36 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  $\alpha$ -Glucose.

20 How is acetone differentiated from acetaldehyde using IR spectroscopy ?

21 Predict the possible electronic excitations in methyl vinyl Ketone. Explain.

(9 x 9 = 81 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 61.5 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 x 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 x 4 = 8 weightage)

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