C 1771 (Pages : 3) Name.....

Reg. No.....

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH/APRIL 2016

(UG—CCSS)

Chemistry—Core Course

CH6 B16—ORGANIC CHEMISTRY—III

Time : Three Hours Maximum : 30 Weightage

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

1 Stationary phase in column chromatography can be ————.

(a) Silica gel. (b) Hexane.

(c) Chloroform. (d) All of the above.

2 Paper chromatography involves ————.

(a) Adsorption. (b) Partition.

(c) Both of the above. (d) None of the above.

3 Soft soap generally contains ————.

(a) KOH. (b) NaOH.

(c) $Ca(OH)_2$. (d) All of the above.

4 Green synthesis involves ————.

(a) Enzymes. (b) Excess of solvents.

(c) Excess of reagents. (d) High temperature.

5 Carbohydrates are characterised by the presence of ————.

(a) OH groups. (b) Carbonyl groups.

(c) Chiral carbons. (d) All of the above.

6 Which one of the following amino acid is not optically active ?

(a) Alanine. (b) Valine.

(c) Isoleucine. (d) Glycine.

Turn over

7 Drying oils must have the following feature in their structure.

(a) Unsaturation . (b) Free—OH.

(c) Free—SH. (d) All of the above.

8 A group that gives the colour of a dye is called ————.

9 The number of signals in the NMR spectrum of acetone is ————.

10 The sugar present in DNA is ————.

11 Glucose and mannose may be prepared by kiliani synthesis from ————.

12 Oil of mirbane is ————.

(12 × ¼ = 3 weightage)

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

13 Explain any two principles of green chemistry.

14 What is R_f value ? Explain its importance.

15 Draw the structure of indigo dye.

16 Nitromethane reacts with NaOH. Why ?

17 Mention any two applications of UV spectroscopy.

18 Explain the term "isoelectricpoint",

19 Explain the mutarotation in Glucose.

20 How is acetone differentiated from acetaldehyde using IR spectroscopy ?

21 How are fats distinguished from oils ?

(9 × 1 = 9 weightage)

III. Short essays or paragraph questions. Answer any *five* questions.

22 Comment on microwave assisted and ultrasound assisted organic synthesis.

23 How will you interconvert glucose and fructose ?

24 Discuss the steps involved in a dipeptide synthesis.

25 Outline the chemical classification of dyes citing one example for each.

26 Discuss the structure of pyridine and comment on its electrophilic and nucleophilic reactions.

27 Outline the synthesis of nylon 6 and nylon 66.

28 How is hydrogen bonding in alcohols identified using IR spectroscopy ?

(5 × 2 = 10 weightage)

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

29 Discuss in detail the structure of DNA and maltose.

30 Discuss a method of preparation of aniline and indole. Explain any two substitution reactions of each of them.

31 (a) Explain the synthesis and applications of ethyl acetoacetate.

(b) Give a brief account of soaps and detergents.

(2 × 4 = 8 weightage)