

CS/2051

CHEMISTRY-6-GE-7-BHB-32

(Semester-VI)

Time : Three Hours]

[Maximum Marks : 74

Note : The question paper consists of three Sections A, B and C. Section A and B have *four* questions from the respective sections of the syllabus and carry 11 marks each. Candidates are required to attempt *two* questions each from Sections A and B of the question paper. Section C consist of 15 short answer type questions carry 30 marks and candidates are required to attempt the entire Section C.

SECTION-A

- I. What is meant by nucleotides and nucleosides. Give examples. The dipole moment of Furan is lower (0.7D) than that of tetrahydrofuran (1.7D). Explain. 11
- II. What are essential trace elements? Why is aniline less basic than pyridine? What reactant are needed to make 2,6-diethyl 4-phenylpyridine by Hantzsch pyridine synthesis? 11

- III. What are proteins? How are they classified? Discuss briefly the biological functions of proteins. Unlike glucose, neither α , nor β -methyl glucoside reduces Tollen's reagent or Fehling's solution. 11
- IV. Why an amino acid has the minimum solubility at its isoelectric point? Discuss the methods of synthesis of purines and pyrimidines bases found in nucleic acids. 11

SECTION-B

- V. Differentiate between thermal and photochemical process. Are the heterocyclic compounds aromatic in nature? If not, give three examples of non-aromatic heterocyclic compounds. 11
- VI. Give the mechanism of electrophilic substitution reactions in pyrrole. Discuss briefly the method of preparation of indole and quinoline. 11
- VII. Differentiate between Fluorescence and Phosphorescence. Determine the crystal structure of CsCl. 11
- VIII. Explain the term photosensitization and quenching and discuss their mechanism taking suitable examples. 11

SECTION-C

- IX. (a) Calculate the energy of an Einstein of radiation of wavelength 253.7nm.

- (b) What are radiative and non-radiative transmission?
 - (c) Explain photochemical reaction by taking suitable example.
 - (d) Give two examples of carbohydrates which do not conform to the general formula of carbohydrates.
 - (e) Pyridine is water soluble but pyrrole is not. Explain.
 - (f) What is cooperativity?
 - (g) What is a cell?
 - (h) What are deoxy haemoglobin and deoxy myoglobin?
 - (i) What are nitrogenases?
 - (j) Prefix D is given to fructose even though it is laevorotatory.
 - (k) Furan undergoes Diels Alder reaction but thiophene does not. Explain.
 - (l) What are the functions of nucleic acid in human body?
 - (m) Why is isoelectric point of neutral amino acids less than 7?
 - (n) Two strands of DNA are complementary. Explain.
 - (o) Explain renaturation of proteins. (15×2=30)
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