

Code No. 1508 / E

FACULTY OF SCIENCE
B. Sc. III-Year Examination, March / April 2014

Subject : Chemistry
Paper – IV

Time : 3 Hours

Max. Marks : 100

Section – A (46 Marks)
(Essay Answer Type)

Note: Answer all questions by choosing any two bits from question.
Each bit carries 7½ marks.

- 1 (a) Explain types of paper chromatography. 7½
(b) Define Beer-Lambert law. Describe the method for the determination of ferric ion with thiocyanate. 7½
(c) Explain the following terms with suitable examples. 7½
(i) chromophore (ii) auxochrome (iii) bathochromic shift
(d) What are Equivalent and Non-equivalent protons? Explain the NMR spectra of ethyl alcohol? 7½
- 2 (a) Define the term pharmacy. Explain metabolites and Antimetabolites. 7½
(b) Write the synthesis and therapeutic activity of 7½
(i) L-Dopa (ii) Chloroquin
(c) What are pesticides? Explain the types of pesticides with suitable examples. 7½
(d) Define Green synthesis. Explain the following green synthetic reactions 7½
(i) Aldol condensation (ii) Diels Alder reaction
- 3 (a) Define number average and weight average molecular weight. A polymer contains 'A' and 'B' types of molecules with ratio of 2:3 having molecular weights 10,000 and 15,000 respectively. Calculate the number average weight average molecular weights. 8
(b) Write the synthesis and uses of Nylon-6, 6 and terelene. 8
(c) Explain Meissner effect. Mention types and applications of super conductors. 8
(d) What is enzyme catalysis? Give the mechanism of acid catalysed hydrolysis of Esters. 8

Section – B (9 x 6 = 54 Marks)
(Short Answer Type)

- 4 (a) Write briefly the procedure and applications of TLC. OR
(b) Write briefly various modes of vibrations in polyatomic molecules in IR spectroscopy.
- 5 (a) Write a note on formulations. OR
(b) Define R_f values. Give its uses.
- 6 (a) Give the structures of zidovudine and Nevinaprine and mention their medicinal uses. OR
(b) Explain spin-spin coupling. What is coupling constant?
- 7 (a) Give the synthesis and uses of endo sulfan. OR
(b) What are hormones and pheromones? Give their uses.
- 8 (a) Describe the osmotic pressure method for determining of molecular weight of a polymer. OR
(b) Give the synthesis and uses of DDT.
- 9 (a) What is Ziegler –Natta catalyst? Explain its role in polymerization. OR
(b) Give the synthesis and uses of teflon.
- 10 (a) What are super conductors? Mention its applications. OR
(b) Write about homogenous and heterogeneous catalysis with suitable examples.
- 11 (a) Write a brief note on biocatalyst. OR
(b) Discuss the microwave green synthesis for cannizaro reaction.
- 12 (a) Write a note on composites. OR
(b) What are nanomaterials? Mention its applications.
