M.Sc. 3rd Semester Practical Examination, 2021
CHEMISTRY
Course Title : (Organic Chemistry Practical)
Course Code : CHEM 304C(PR)
Course ID : 31464

Time: 2 Hours **Full Marks: 40**

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as possible

1. Answer *any five* of the followings: 2×5 = 10

(a) Write down the full form of HPLC.

(b) Which class of compounds can be detected by Tollen's reagent & Fehling's solution?

(c) What do you mean by Rf value?

(d) What is eluent in column chromatography?

(e) Write full form of GC-MS.

(f) In Lassaigne's test the sulphur atom in organic compound is converted to-

(I) S gas, (II) SO_2, (III) H_2S, (IV) S^{2-}

(g) What is eluotropic series of solvents?

2. Answer *any four* of the followings: 5×4 = 20

(a) Write down the principal of thin-layer chromatography? What are the common techniques used for detection of compounds in TLC. 3+2 = 5

(b) State the confirmatory tests of both the functional groups present in methyl-*p*-hydroxybenzoate. Which functional group will you prefer to prepare the derivative?

2+2+1 = 5

(c) How will you monitor the ester hydrolysis in the presence of alkali taking UV spectroscopy as marker? 5

(d) Write short notes on: (I) Column Chromatography, (II) Paper Chromatography 2.5+2.5 = 5

(e) How will you prepare Tollen's reagent? Give the chemical reactions involved therein. 5

(f) (i) Write two names of the compounds that are used as stationary phase in column chromatography. Name the reagent used for the detection of amino acid in thin layer chromatography. (ii) A 0.003 M solution of compound X transmits 75% of incident light. If the path length is 1 cm, calculate the extinction coefficient. (2+1)+2 = 5

3. Answer *any one* of the followings: 10×1 = 10

(a) Write ten functional groups along with their acidic/basic and neutral nature. 10

(b) You are given a mixture of benzoic acid and *p*-anisidine. How will you separate them by solvent extraction and chromatography? Describe the principles. Which one of the above compounds elutes first in column chromatography? (3+3)+3+1 = 10