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Reg. No. : .....

Name : .....

Fourth Semester M.Sc. Degree Examination, March 2021

Analytical Chemistry

CL 242 : APPLIED ANALYTICAL CHEMISTRY

(2016 Admission Onwards)

Time : 3 Hours Max. Marks : 75

SECTION – A

Answer any two sub-questions among (a), (b), or (c) from each question. Each sub-question carries **2** marks.

1. (a) Discuss the migration rates of solutes in gas chromatographic analysis.

   (b) Distinguish between dialysis and electrodialysis.

   (c) Discuss the operating principle and applications of microfiltration.

2. (a) What is the theory of thermogravimetric analysis?

   (b) What are the applications of Thermo Mechanical Analyzer?

   (c) Discuss the applications of radioactive isotopes in medicinal field.

3. (a) What are the main ways by which food stuff is contaminated?

   (b) What are the physiological effects of hashish?

   (c) What is the significance of LC 50?

P.T.O.

4. (a) What is the basic theory of photoelectron spectroscopy?

   (b) What are the disadvantages of Atomic Absorption Spectroscopy?

   (c) What are the applications of background correction method?

5. (a) Discuss the estimation and interpretation of cholesterol in blood.

   (b) Discuss the biological significance of the analysis of monoaminoxidase.

   (c) What is meant by sodine bromine value?

(10 × 2 = 20 Marks)

SECTION – B

Answer either (a) or (b) of each question. Each question carries **5** marks.

6. (a) Compare the advantages and disadvantages of thin layer chromatography method.

   (b) Discuss the roles of chelating ligands and calixarenes in solvent extraction.

7. (a) What is the principle of Neutron Activation Analysis? What are its applications?

   (b) Describe the applications of radiometric titrations.

8. (a) Describe the methods used for the detection of pesticides in food materials.

   (b) Briefly explain the method of determination of poisonous lead in forensic samples.

9. (a) Compare the applications of Molecular Fluorescence and X-ray Fluorescence Spectroscopy.

   (b) Describe the sample introduction and applications of plasma emission spectroscopy.

10. (a) Briefly explain the importances of determination of carbohydrates.

    (b) Discuss the method of estimation of antibiotics.

(5 × 5 = 25 Marks)

SECTION – C

Answer **any three** questions. Each question carries **10** marks.

11. Explain the principle, technique and applications of ion exchange chromatography.

12. Explain the theory and instrumentation of differential scanning calorimetry. By taking an example draw the thermogram with heat flow vs temperature. Discuss the thermal changes.

13. (a) Write a short note on nuclear waste disposal.

    (b) Explain the method of action of organo-phosphorous substances.

14. Explain the instrumentation, types of analysis and applications of Atomic emission spectroscopy.

15. Explain the methods of analysis of common pharmaceuticals for its quality control.

(3 × 10 = 30 Marks)
