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Reg. No. :

Name :

Fourth Semester M.Sc. Degree Examination, April 2026

Analytical Chemistry

CL 242: APPLIED ANALYTICAL CHEMISTRY

(2020 Admission onwards)

Time : 3 Hours

Max. Marks : 75

PART – A

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

Each sub-question carries 2 marks

1. (a) What is the theory of thermometric titrimetry?
(b) What are the applications of isotope dilution analysis?
(c) What are the advantages of radiometric titration?
2. (a) What is the significance of iodine number?
(b) Describe the reaction in Karl Fischer titration.
(c) What is Nelson-Somogyi method?
3. (a) Discuss the mode of action of cyanide.
(b) What is the basic principle of forensic analysis?
(c) What is internal ballistics? How is it differing from terminal ballistics?
4. (a) What is the method of estimation of cholesterol?
(b) What is the significance of Pepsin?
(c) What is the Brix test for beverages?
5. (a) What is Atomic Absorption Spectroscopy? What are its advantages?
(b) Discuss the types of burners used in flame spectroscopy.
(c) What is the basic theory of X-ray Photoelectron Spectroscopy?

(10 × 2 = 20 Marks)

P.T.O.



PART – B

Answer **all** question. Each question carries **5** marks.

6. Discuss the applications of radio isotopes in industry.

OR

7. Briefly explain the applications of neutron activation analysis.

8. What is mean by adulteration? Discuss the adulteration of food items such as, milk and spice powders.

OR

9. What the causes of pesticide residue in food products? Discuss its effects

10. What is meant by DNA fingerprinting? Briefly explain the steps involved in DNA finger printing.

OR

11. Describe the composition of bullets.

12. Briefly explain the method of estimation of hemoglobin

OR

13. Discuss the methods of analysis of ethyl carbomate in alcohol

14. Briefly explain the principle and uses of Atomic Emission Spectroscopy.

OR

15. Briefly explain the principle and instrumentation of molecular fluorescence spectroscopy.

(5 × 5 = 25 Marks)

PART – C

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

16. Explain the principle and instrumentation of Thermo Mechanical Analyzer.

17. (a) Explain the Kjeldahl method for the determination of crude protein.

(b) What is meant by Rancidity? What is its effect? How is it detected? How will you determine it?

18. (a) Explain the classifications of poisons. Toxicological classification:

(b) Illustrate the method of forensic analysis of blood substances.

19. (a) Explain the modern methods of drug analysis

(b) Discuss the methods of analysis of antibiotics.

20. Explain the principles, instrumentation and application of x-ray fluorescence spectroscopy.

(3 × 10 = 30 Marks)

