Registration No.: | | | | | | | | | | |

Total Number of Pages: 01 **Course: M.Sc.I**

Sub_Code: FCYE804

8th Semester Regular Examination: 2024-25

SUBJECT: Inst. Methods. of Chemical Analysis-II

BRANCH(S): M.Sc.I(AC)

Time: 3 Hours

Max Marks: 70

Q.Code: S150

Answer Question No.1 (Part-I) which is compulsory, any five from rest (Part-II)

The figures in the right hand margin indicate marks.

Part-I

Q1 **Answer the following questions :** **(2 x 10)**

a) Define Thermogravimetric Analysis.
b) What is the principle of Differential Thermal Analysis?
c) Explain the role of tracers in radiochemical techniques.
d) Differentiate between CD and ORD spectroscopy.
e) What is the Stokes shift in fluorescence spectroscopy?
f) State the basic principle of voltammetry.
g) What is the function of a working electrode in polarography?
h) Define conductometric titration.
i) List any two radiation detectors used in radiochemical methods.
j) What are the advantages of coulometry over other electroanalytical techniques?

Part-II

Long Answer Type Questions (Answer Any five)

Q2 **a)** Describe the working principle and instrumentation of Thermogravimetry (TG). **(5 + 5)**
b) Discuss the applications of Differential Thermal Analysis (DTA) in chemical analysis.

Q3 **a)** Explain the decay law in radiochemical methods. **(5 + 5)**
b) Discuss the types and working of radiation detectors.

Q4 **a)** Describe the principle and applications of Circular Dichroism (CD). **(5 + 5)**
b) Write a note on instrumentation and applications of fluorescence spectroscopy.

Q5 **a)** Explain the principle of electrogravimetry and its applications. **(5 + 5)**
b) Describe the instrumentation of voltammetry.

Q6 **a)** Discuss the principle and types of coulometric techniques. **(5 + 5)**
b) Describe a typical setup used in coulometry.

Q7 **a)** Explain the basic setup and theory behind polarographic analysis. **(5 + 5)**
b) Write a note on dropping mercury electrode and its role in polarography.

Q8 **a)** Describe the principle of conductometry. **(5 + 5)**
b) Discuss the application of conductometry in the determination of strong acid and strong base.