

**M. SC. (MICROBIOLOGY) SEM-II (C.B.C.S.) (2012 COURSE)  
: WINTER - 2017**

**SUBJECT : ANALYTICAL TECHNIQUES**

Day : Wednesday  
Date : 25/10/2017

Time : 03.00 PM TO 06.00 PM  
Max. Marks : 60

**W-2017-0807**

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.

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- Q.1** Describe fluorescence spectroscopy with reference to : **[15]**
- a) Fluorescence phenomenon and fluors
  - b) Quantum yield Q
  - c) Design of fluorometer
  - d) Applications and advantages

**OR**

Write the principle, working and applications of partition chromatography.

- Q.2** a) Explain the principle and use of analytical ultra-centrifugation in determination of relative molecular mass. **[08]**

- b) Explain the use of radioisotope with reference to: **[07]**
- i) half life
  - ii) Scintillation cocktail

- Q.3** Attempt **ANY THREE** of the following: **[15]**

- a) Explain PAGE technique as a tool in determining purity of proteins.
- b) Write note on : Care and safety in handling of rotor.
- c) Explain silver staining as a post-electrophoretic gel development process.
- d) Schematically represent operation of various types of rotors.
- e) Describe the types of detectors used in chromatography.

- Q.4** Attempt **ANY THREE** of the following: **[15]**

- a) Write note on support media used in gel electrophoresis.
- b) Give an overview of types of centrifuge and their uses.
- c) Draw neat labelled diagram of instrumentation in Atomic spectroscopy.
- d) Give use of following in electrophoresis:  
i) Buffer      ii) SDS      iii) Agarose
- e) Write note on Safety while working with radioisotopes.

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