M. SC. (MICROBIOLOGY) SEM-II (C.B.C.S.) (2012 COURSE) : SUMMER - 2018

SUBJECT : ANALYTICAL TECHNIQUES

Day : **Friday**
Date : **13/04/2018**

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

S-2018-0907

N.B.:

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

Q.1 Describe electrophoretic technique with reference to : **[15]**

a) Principle
b) Instrumentation
c) Support media
d) Applications

OR

Explain the gas liquid chromatography with reference to following points:

a) Column
b) Mobile phase
c) Working
d) Applications

Q.2 **a)** What are radioisotopes? Describe analytical applications of radiolabelling. **[08]**

b) Write applications of analytical ultracentrifugation. **[07]**

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

a) Define the term RCF and RPM. Enlist various factors that affect rate of sedimentation of biomolecules in centrifugation.

b) Write note on : Flame ionization detector.

c) Schematically represent the rationale for the choice of a chromatographic system.

d) Comment on fluors used in study of biomolecules.

e) State the Beer's and Lambert's law and add a comment on their applications and limitations.

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

a) Explain with a suitable diagram, chromatogram of two analytes showing complete separation and calculation of retention time.

b) Give applications of UV spectroscopy.

c) Give schematic representation for separation of a tissue homogenate into various subcellular fractions using centrifugation method.

d) Write in brief the design and operation of fixed angle rotor.

e) Write note on Detection and Measurement of radioactivity.

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