DBZ-003-1192004 Seat No. _____

M. Sc. (Microbiology) (Sem. II) (CBCS) Examination

July - 2022

MICRO-210 : Analytical Techniques

Faculty Code : 003
Subject Code : 1192004

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 Answer the following : (any seven) **2×7=14**

(a) Describe Planck's Quantum theory.

(b) What is electron spray ionization process ?

(c) Distinguish SEM and TEM.

(d) Write types of fixation process.

(e) Give the principle of Affinity chromatography.

(f) What is a northern blot analysis ?

(g) Discuss spectrum.

(h) Write advantages and disadvantages of GC-MS technique.

(i) What is nuclear emulsion ?

(j) Describe Quadrupole Mass Analyzer.

2 Answer the following : (any two) **2×7=14**

(a) Discuss the principle and applications of autoradiography.

(b) Brief notes about Electron microscopy.

(c) Give a brief account on fluorescence microscopy.

3 Answer the following : **2×7=14**

(a) Discuss the statement "Spectroscopy is vital tool for analytical science".

(b) Write a detailed account on nuclear magnetic resonance.

OR

(a) Give a general account on MS and its applications.

(b) Briefly describe about IR and UV spectroscopy.

4 Answer the following : **2×7=14**

(a) Exemplify the principle of HPLC and its advantage.

(b) Write a short note on Ion exchange chromatography for protein separation.

5 Write a short note on : (any **two**) **2×7=14**

(a) Western blotting technique

(b) SDS-PAGE

(c) Centrifugation

(d) Fractionation