

B. Sc. Semester-V (HONOURS) Examinations-2020

Subject- Microbiology

Paper- DSE-2 (Instrumentation and Biotechniques) (Theory)

F.M.-40

Time- 2 hrs.

Answer *any eight* questions from the following

5 x 8 = 40

- 1. Write the principle and application of fluorescence microscopy.**
- 2. Why high vacuum is maintained in TEM? Differentiate between TEM and SEM.**
- 3. Name the mobile and stationary phases in thin layer and gel filtration chromatographic techniques. What is meant by void volume?**
- 4. Discuss the principle and application of colorimetry.**
- 5. Write the principle and application of 2D gel electrophoresis.**
- 6. Write the functions of SDS and ammonium persulfate in SDS-PAGE? Write the full form of TEMED.**
- 7. What is molar extinction coefficient? Calculate the optical density of 0.2 millimoles of a solute (Molar extinction coefficient = $13.3 \text{ M}^{-1}\text{cm}^{-1}$) in a 4 ml volume, where the path length is 1 cm.**
- 8. State Lambert-Beer's law and write its limitations.**
- 9. What is RCF? How is it related to RPM? What is sedimentation coefficient?**
- 10. Write brief notes on: i) differential centrifugation, ii) density gradient centrifugation.**

B. Sc. Semester-V (Honours) Examinations-2020
Subject- Microbiology
Paper- DSE-2 OR (Microbial Biotechnology and its Application) (Theory)

Full Marks: 40

Time- 2 hrs.

Answer *any eight* questions from the following

5 x 8 = 40

1. Discuss the application of microbial biotechnology in human therapeutics.
2. Write a short note on recombinant vaccines.
3. Illustrate the application of microbes in biotransformation process of steroids.
4. Explain the basic principle and application of Ion exchange chromatography technique.
5. What are xenobiotics? Write the role of microbes in removal of heavy metals.
6. Write a short note on gene silencing.
7. Explain Patent and Trademark.
8. Describe the method of microbial production of hydrogen.
9. Write a short note on commercial production of bio-ethanol.
10. What is biofertilizer? Write its significance in agriculture.