(6 pages) Reg. No. : .....

Code No. : 10888 E **Sub. Code : EEMI 21**

B.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2024.

Second Semester

Microbiology

Elective II — BIOINSTRUMENTATION

(For those who joined in July 2021-2022 only)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which instrument is used to separate components of a microbial sample based on density?
   (a) Incubator
   (b) Microscope
   (c) Centrifuge
   (d) Autoclave

2. Identify the following can be used for selective precipitation of proteins
   (a) Phenol
   (b) Ammonium sulphate
   (c) NaCl
   (d) Sodium acetate

3. _____ type of spectroscopy uses ultraviolet and visible light to study the electronic transitions in molecules
   (a) Intra red
   (b) X – ray
   (c) UV — visible spectroscopy
   (d) FT – IR

4. _____ state of matter mass spectroscopy is being performed
   (a) Solid (b) Liquid
   (c) Gaseous (d) Both (b) and (c)

5. What is the purpose of using gel electrophoresis in a laboratory?
   (a) synthesis of DNA
   (b) sterilization
   (c) separation of DNA based on size
   (d) pasteurization

6. HPLC is stand for ————————

(a) High performance liquid chromatography

(b) High pressure liquid chromatography

(c) High profit liquid chromatography

(d) High performance low chromatography

7. What does CT stand for in the term CT scan?

(a) Computed Tomography

(b) Computerized transmission

(c) Computed Technology

(d) Computerized Technology

8. ———————— number of electrodes are connected in a patient to measure ECG

(a) 1 (b) 2

(c) 3 (d) 4

9. Which spectroscopy is measure intensity of the fluorescence of molecule?

(a) IR (b) NMR

(c) Flurometry (d) Both (a) and (c)

10. The measurement of ———————— is used for qualitative analysis in flame photometer

(a) Intensity (b) Colour

(c) Velocity (d) Frequency

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Describe the working performance of Incubator.

Or

(b) Select the difference between molarity and normality.

12. (a) Interpret the principles of Infra red spectroscopy.

Or

(b) Illustrate the instrumentation and application of mass spectroscopy.

13. (a) Explain the thin layer chromatography technique.

Or

(b) Predict the working mechanism of Gas chromatography.

14. (a) Analyze the principle and application of EEG.

Or

(b) Select the components of computed tomography with their applications.

15. (a) Measure the working principles of spectrofluorimeter.

Or

(b) Predict the types of Geiger Muller counter and its application.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Examine the structural components and function of laminar air flow chamber.

Or

(b) Select the principle, components and importance of autoclave.

17. (a) Discuss the theory and application of UV - visible spectroscopy.

Or

(b) Illustrate the working principle of colorimeter with their applications.

18. (a) Write the working mechanism of paper chromatography and its importance.

Or

(b) Examine the different steps involved in separation of DNA molecules with electrophoresis.

19. (a) Explain the principle, instrumentation and application of ECG.

Or

(b) Select the principle of PET scanner and clinical application of PET scan radioisotopes.

20. (a) Summarize the principle and working procedure for flame photometer.

Or

(b) Appraise the principle and function of auto radiography.

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