

(Pages : 3)



T-3435

Reg. No. : .....

Name : .....

**Second Semester B.Sc. Degree Examination, August 2024**

**Career Related First Degree Programme under CBCSS**

**Group 2(a) : Botany and Biotechnology**

**Foundation Course II**

**BB 1221 : BIOPHYSICS AND INSTRUMENTATION**

**(2023 Admission)**

Time : 3 Hours

Max. Marks : 80

**SECTION – A**

Answer **all** the questions in a word or **one** or **two** sentences. Each question carries 1 mark.

1. Write the importance of Phosphorus-32.
2. What is astigmatism?
3. Identify any live cell imaging technique.
4. What is  $\text{FADH}_2$ ?
5. Identify Organ of Corti.
6. What is OD?
7. Expand SDS.

P.T.O.

8. Define fluorimetry.
9. What is rhodopsin?
10. What is RPM?

(10 × 1 = 10 Marks)

### SECTION – B

Answer any **eight** questions. Each question carries **2** marks. (Answer not to exceed 1 paragraph.

11. What is MALDI?
12. List the applications of X-ray crystallography.
13. What is colorimeter?
14. Comment on cytochrome c oxidase.
15. What is numerical aperture?
16. Identify the radioisotopes used in cancer treatment.
17. Explain Phototransduction.
18. What is vibration transmission in hearing?
19. What is meant by absorption spectra?
20. Explain the principle of Flow cytometry.
21. Identify the components of simple microscope.
22. Discuss the importance of molecular weight marker in electrophoresis.

(8 × 2 = 16 Marks)

### SECTION – C

Answer any **six** questions. Each question carries **4** marks. (Answer not to exceed **120** words).

23. Differentiate between fluorescence and phosphorescence.
24. State and explain Laws of thermodynamics.
25. Explain the structure and functions of ATP synthase.
26. Discuss principle and uses of native electrophoresis.
27. Give a short note on common refractive errors.
28. Explain the working and uses of NMR.
29. What is a pH meter? Explain its working.
30. Compare and contrast phase contrast and simple microscope.
31. Explain the principle of SEM.

(6 × 4 = 24 Marks)

### SECTION – D

Answer any **two** questions. Each question carries **15** marks. (Answer not to exceed **3** pages).

32. Discuss the principle, working and applications of PAGE.
33. Explain the working principle and applications of autoradiography.
34. Discuss in detail the bioenergetics of respiration.
35. Write an essay on types and uses of electron microscopy.

(2 × 15 = 30 Marks)