

(Pages : 3)

T – 3431

Reg. No. :

Name :

Second Semester B.Sc. Degree Examination, August 2024

Career Related First Degree Programme under CBCSS

Group 2(a) – Botany and Biotechnology

BB 1221 : BIOPHYSICS AND INSTRUMENTATION

(2019-2022 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** the questions in a word or **1** or **2** sentences. Each question carries **1** mark.

1. Comment on fluorescence microscopy.
2. What is pI?
3. Expand TEM.
4. Identify the contributions of Ernst Ruska.
5. Give note on hyperopia.
6. Comment on stereomicroscope.
7. What is calomel electrode?
8. Give note on applications of confocal microscopy.
9. What is Beer-Lambert law?
10. What is a radioactive tracer?

(10 × 1 = 10 Marks)

P.T.O.



SECTION – B

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

11. Explain astigmatism.
12. What are radioisotopes?
13. Give note on AFM.
14. Explain the applications of IR spectroscopy.
15. What is LC-MS/MS used for?
16. Brief note on Scintillation counter.
17. Comment on the Laemmli buffer in electrophoresis.
18. Explain Time Course Measurement.
19. What are photoreceptors?
20. Explain the structure of ATP synthase.
21. Give note on hearing aids.
22. Discuss the applications of NMR.

(8 × 2 = 16 Marks)

SECTION – C

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

23. Explain the mechanism of hearing.
24. Give a brief note on Laws of thermodynamics.



25. Explain oxidative phosphorylation.
26. Comment on X-ray crystallography.
27. Give note on FACS.
28. Elaborate on principle and applications of IEF.
29. Give note on components of SDS-PAGE.
30. Differentiate between fluorescence and phosphorescence.
31. Comment on the reception of sonic vibrations in hearing.

(6 × 4 = 24 Marks)

SECTION – D

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

32. What is electron microscopy and explain different types of it.
33. Give a brief note on principles of protein electrophoresis and discuss different types of it.
34. Write an essay on synthesis of ATP and bioenergetics of respiration.
35. Discuss the applications of radioisotopes in biosciences. Explain different tracer techniques.

(2 × 15 = 30 Marks)

