

(Pages : 3)

M – 2590

Reg. No. :

Name :

Second Semester B.Sc. Degree Examination, December 2021

Career Related First Degree Programme under CBCSS

Group 2(a) – Botany and Biotechnology

BB 1221 : BIOPHYSICS AND INSTRUMENTATION

(2020 Admission Regular)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** questions (Maximum of **two** sentences) **each** question carries **1** mark.

1. State Beer Lambert's law.
2. What is isoelectric point?
3. What is stacking gel?
4. Define entropy.
5. What is the principle of SEM?
6. Define phosphorescence.
7. What is a radioactive tracer element?
8. What is NADP?
9. Define pH?
10. How astigmatism is generated?

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

Answer any **eight** questions (Not to exceed **one** paragraph) **each** question carries **2** marks.

11. State the second law of thermodynamics.
12. What is the principle of Atomic Force microscopy?
13. Differentiate between rods and cons?
14. What is proton motive force?
15. Define oxidative phosphorylation.
16. What is isoelectric focusing?
17. Define half life period of a radioactive element.
18. Comment on IR radiations.
19. What is redox reaction?
20. List the applications of colorimetry.
21. Explain submarine electrophoresis.
22. What is myopia? How it can be corrected?
23. Mention the use of polyacrylamide and TEMED in electrophoresis.
24. What is otolith?
25. Write the principle of centrifugation.
26. What is ATP?

(8 × 2 = 16 Marks)

SECTION – C

Answer any **six** questions. **Each** question carries **4** marks.

27. Write a brief note on hearing aids.
28. Explain the working of a pH meter.
29. What is mass spectrometry?
30. Write the principle and instrumentation of NMR.

31. Explain the applications of uv spectrophotometry.
32. Comment on autoradiography.
33. What is fluorimetry?
34. Explain the structure and function of ATP synthase.
35. Which are the components of a light microscope?
36. How the inner ear is suitable for receiving sounds?
37. Describe the uses of radioactive elements in biology.
38. Explain phase contrast microscopy.

(6 × 4 = 24 Marks)

SECTION – D

Long essay: Answer any **two** questions. **Each** question carries **15** marks.

39. Explain the principle and steps of SDS PAGE?
40. Describe the mechanism of vision with suitable illustrations.
41. Write an account on FACS.
42. Explain the technique of x ray crystallography.
43. Which are the steps of respiratory electron transport chain?
44. Explain the principle and working of Electron microscopy.

(2 × 15 = 30 Marks)
