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Reg. No. : ....

Name : ....

First Semester B.Sc. Degree Examination, January 2024

Career Related First Degree Programme under CBCSS

Group 2 (a) - Botany and Biotechnology

Complementary Course :

BB 1131 : INTRODUCTION TO BIOCHEMISTRY

(2014 – 2019 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – I

Answer **all** questions.

1. Define pH.

2. Why do weak acids used in buffer?

3. Define the term diffusion

4. What is hypertonic solution?

5. What is emulsion?

6. Specify the role of monochromator in UV- Spectrophotometer.

7. What is centrifugal force?

8. Name the stationary phase used in ion-exchange chromatography.

P.T.O.

9. What is the role of SDS in electrophoretic separation of proteins?

10. Define covalent bond.

(10 × 1 = 10 Marks)

SECTION – II

Answer any **eight** questions.

11. What is buffer action?

12. Write the applications of Henderson-Hasselbalch equation.

13. Distinguish W/V and V/V per cent solution.

14. Outline the biological role of surface tension.

15. What are crystalloids? Give an example.

16. Clarify molar extinction coefficient.

17. Give the applications of density gradient centrifugation.

18. Write the principle of chromatography.

19. What does eluent mean in chromatography?

20. List the factors affecting electrophoretic separation of molecules.

21. Draw the structure of phosphodiester bond.

22. Name the types of structural isomers?

(8 × 2 = 16 Marks)

SECTION – III

Answer any **six** questions.

23. Derive Henderson-Hasselbalch equation.

24. Analyze the types of buffers in biological system.

25. Write note on osmosis, osmotic pressure and its important in biological systems.

26. Demonstrate - Donnan membrane equilibrium.

27. Distinguish the principle of colorimeter and UV-spectrophotometer.

28. Illustrate the procedure of differential centrifugation.

29. Outline the principle and procedure of gel filtration chromatography.

30. Explain the protocol of native PAGE.

31. Outline the intermolecular interactions in biological systems.

(6 × 4 = 24 Marks)

SECTION – IV

Answer any **two** questions.

32. Describe properties and biological significance of colloids.

33. Write the principle, types and applications of density gradient centrifugation.

34. Discuss the principle, procedure and applications of thin layer chromatography.

35. Elaborate the principle, procedure and applications of paper electrophoresis.

(2 × 15 = 30 Marks)
