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Reg. No. : .....

Name : .....

First Semester B.Sc. Degree Examination, March 2023

Career Related First Degree Programme under CBCSS

Group 2(a) — BOTANY AND BIOTECHNOLOGY

Complementary Course

BB 1131 : PHYSICAL ASPECTS OF BIOCHEMISTRY

(2020 Admission Onwards)

Time : 3 Hours Max. Marks : 80

PART – A

Answer **all** questions. Short answer type. Each question carries 1 mark.

1. What happens when water dissociates?
2. Give two examples for acidic buffer systems.
3. Define normality.
4. Write Vant Hoff's equation of osmotic pressure.
5. Mention the emulsifying agents.
6. What are suspensions?
7. Mention the two types of density gradient centrifugation.
8. List out the names of gels used in gel filtration chromatography.

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9. Give examples of covalent bond.

10. What is diffusion.

(10 × 1 = 10 Marks)

PART – B

Answer **any eight** questions, not exceeding one paragraph. Each question carries **2** marks.

11. Calculate the pH of 2.0×10^{-3}M solution of HCl.

12. What is the dissociation of a base?

13. How will you prepare 100 ml of 0.1 N NaOH (equivalent weight = 40).

14. Define osmotic pressure.

15. What are true solutions?

16. Classify colloids based on interaction forces.

17. Write about the two reference electrodes used in pH meter.

18. Explain Beer-Lambert law.

19. State the principle of SDS-PAGE.

20. Name any two locating agents used in TLC.

21. Why is hydroxyl group important in biomolecules?

22. Name the types of isomerism. Explain any two.

(8 × 2 = 16 Marks)

PART – C

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

23. Write a note on buffers in biological system.

24. Distinguish between diffusion and osmosis.

25. Give the biological significance of colloids.

26. Describe the principle and instrumentation of colorimetry.

27. Write the applications of ultracentrifuge.

28. Explain the principles of ion-exchange chromatography.

29. Explain the procedure of paper electrophoresis.

30. Give an account on any two covalent bond existing biomolecules.

31. Write the significance of functional groups in amino acids

(6 × 4 = 24 Marks)

PART – D

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

32. Elucidate the types of amino acids and bioisomerism.

33. Outline the principle and procedure of thin layer chromatography. Give its applications.

34. Explain the principle, procedure and applications of differential centrifugation

35. Describe the principle and procedure of zone electrophoresis. Mention its applications.

(2 × 15 = 30 Marks)
