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D – 5150

Reg. No. :

Name :

First Semester B.Sc. Degree Examination, February 2018

Career Related First Degree Programme under CBCSS

2(a) – BOTANY AND BIOTECHNOLOGY

Complementary Course I : BB 1131

Introduction to Biochemistry

(2014 Adm. Onwards)

Time : 3 Hours

Max. Marks : 80

SECTION – I

(Very short answer type-maximum two sentences)

Answer all questions.

(10×1=10 Marks)

1. What is pH ? What is the pH of 0.01 M HCl solution ?
2. What is a buffer ? Name two biological buffers.
3. State Van't Hoff's law.
4. Define normality and molarity.
5. What is surface tension ?
6. What is Tyndall effect ?
7. State Beer-Lambert's law.
8. What is ultracentrifugation ?
9. Define R_f value.
10. Name the characteristic bonds in
 - a) Polysaccharides and
 - b) Nucleic acids.



SECTION - II

(Short answer questions – not to exceed one paragraph)

Answer any eight questions.

(8×2=16 Marks)

11. Write down Henderson-Hasselbalch equation and enumerate its applications.
12. Explain the ionisation of water and show ionic product of water is a constant.
13. Distinguish between osmosis and diffusion.
14. Write a note on biological importance of osmosis.
15. Name and explain the two phases in a colloidal solution with a suitable example.
16. What is meant by Donnan membrane equilibrium.
17. What is a monochromator ? Name two monochromators used in spectrophotometers.
18. What is RCF ? How is it related to rpm ?
19. What is the principle of paper chromatography ?
20. Make a note on the applications of gel filtration chromatography.
21. What is hydrogen bond ? What is its importance ?
22. What is optical isomerism ? What sort of molecules show this isomerism ?

SECTION - III

(Short essay – not to exceed 120 words)

Answer any six questions.

(6×4=24 Marks)

23. Structural features of water.
24. Osmotic pressure and its measurement and applications.
25. Distinction between lyophilic and lyophobic colloids.
26. Emulsions and emulsifying agents.
27. Parts of a spectrophotometer.



28. TLC.
29. Gel electrophoresis.
30. Principle and applications of affinity chromatography.
31. Different types of isomerism.

SECTION - IV
(Long essay)

Answer **any two** questions.

(15×2=30 Marks)

32. Discuss the principle and working of a pH meter.
33. Explain the principle, procedure and applications of ion-exchange chromatography.
34. Describe a technique by which you can isolate cell organelles.
35. Discuss the common functional groups and their significance in bio molecules.
