

Reg. No. :

Name :

Sixth Semester B.Sc. Degree Examination, April 2023

First Degree Programme under CBCSS

Chemistry / Chemistry and Industrial Chemistry

Elective Course

CH 1661.4/IC 1661.4 : BIOCHEMISTRY

(CH 1661.4 : 2013- 2016 & IC 1661.4 : 2013 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** questions (Answer in one word / sentence). Each question carries **1** mark.

1. Iron atom is _____ coordinated in haemoglobin.
2. How many calories are obtained from 1g fat?
3. Name the only enzyme present in bile.
4. The ratio between the distance travelled by a particular component of the mixture to the distance travelled by the solvent front is called _____
5. The disease caused when the production of haemoglobin chains is impaired is _____
6. The hormone that stimulates absorption of water by kidneys is _____
7. The second largest solid constituent of urine is _____

8. Oxygen combining capacity of haemoglobin _____ due to increase in temperature.
9. The process of dissolving out the components from adsorbent in column chromatography is called _____.
10. _____ of a food is the total caloric content that is liberated upon combustion of a unit amount of the sample.

(10 × 1 = 10 Marks)

SECTION – B

Short answer type (Not to exceed one paragraph) Answer any eight questions. Each question carries 2 marks.

11. What is Bohr effect?
12. What is meant by osmoregulation?
13. Give an account of calories of energy obtained from fat, carbohydrate and protein.
14. Specify the role of enzymes in the digestion of fat.
15. Describe the use of ultracentrifugation technique in the separation of mixtures.
16. What is abnormal haemoglobin? Give an example of a disease caused by the abnormality of haemoglobin.
17. What is meant by renal plasma threshold?
18. What is calorific value? How will you measure the calorific value of food?
19. Write any three functions of Bile acids and Bile salts.
20. What is alkalosis?
21. Explain the effect of P^H on the dissociation of oxygen from haemoglobin.
22. What is affinity chromatography? Give one of its advantages.

(8 × 2 = 16 Marks)

SECTION – C

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

23. Briefly discuss the structure of haemoglobin.
24. Illustrate the role of hormones in the regulation of kidney function.
25. Why the P^H of blood remains constant?
26. Briefly discuss the significance of BMR.
27. Describe the principle and application of paper chromatography.
28. What are normal and abnormal constituents of urine?
29. Discuss the role of plasma proteins in maintaining life.
30. Write a short note on the digestion of carbohydrate.
31. Discuss the mechanism of transport of oxygen through blood.

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. Each question carries **15** marks.

32. Describe the principle, technique and applications of ion exchange chromatography.
33. (a) Suggest a method for determining the Basal metabolic rate.
(b) Explain the interrelationship between Oxygen and Carbon dioxide transport.
34. (a) Briefly illustrate the absorption mechanism of fat.
(b) What are enzymes? Explain the significance of enzymes in digestion of Proteins.
35. What is meant by coagulation of blood? Discuss the various factors that control the coagulation of blood.

(2 × 15 = 30 Marks)