

TDC (CBCS) Odd Semester Exam., 2023

CHEMISTRY

(3rd Semester)

Course No. : CHMSEC-301T

(Analytical Chemical Biochemistry)

Full Marks : 50

Pass Marks : 20

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

SECTION—A

Answer *fifteen* questions, taking *three* from each

Unit :

1×15=15

UNIT—I

1. What is glycolysis?
2. What are the end products of glycolysis?

(2)

3. State True or False :

Ascorbic acid is a water soluble vitamin which is a derivative of carbohydrates.

4. Name the coenzyme which is involved in lactic acid fermentation.

UNIT—II

5. What do you mean by primary structure of protein?

6. What is the active site of an enzyme?

7. Define isoelectric point of amino acids.

8. What are different types of enzymes?

UNIT—III

9. What are phospholipids?

10. Give one example each of a compound lipid and a derived lipid.

11. Name which compound lipid is involved in blood clotting.

12. Give an example of steroid hormone.

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(Continued)

(3)

UNIT—IV

13. Fill in the blank :

Primary blood cells are found in ____.

14. What is the main difference between venous blood and arterial blood?

15. Name the main constituents of blood.

16. Which metal ion is vital for blood coagulation?

UNIT—V

17. What does high level of urea in urine indicate?

18. What is the normal range of serum creatine for an adult male and female?

19. What is blood analysis?

20. Which organ of the body is affected by high level of cholesterol in blood?

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(Turn Over)

(4)

SECTION—B

Answer *five* questions, taking *one* from each Unit :
2×5=10

UNIT—I

21. Mechanistically explain the conversion of fructose-6-phosphate to dihydroxyacetone phosphate and glyceraldehyde-3-phosphate in glycolysis.
22. Explain why ATP contains high-energy bonds located between each phosphate group.

UNIT—II

23. What are the characteristics of an enzyme catalysis?
24. What is denaturation of protein? Explain why denaturation process is irreversible.

UNIT—III

25. What are the biological functions of lipoproteins?
26. Write the biological functions of cholesterol.

(5)

UNIT—IV

27. What are the causes of different types of anaemia?
28. What are the most important functions of blood?

UNIT—V

29. What is the normal and abnormal ranges of blood sugars? How do you interpret the data? 1+1=2
30. What is bilirubin? What are the causes of elevated bilirubin in blood? 1+1=2

SECTION—C

Answer *five* questions, taking *one* from each Unit :
5×5=25

UNIT—I

31. Discuss in detail the process of lactic acid fermentation.
32. Explain the reactions involved in glycolysis.

(6)

UNIT—II

33. Describe the mechanism of an enzyme catalyzed reaction. What are the various factors which affect an enzyme catalyzed reaction? 3+2=5
34. Discuss the secondary and tertiary structures of a protein. $2\frac{1}{2}+2\frac{1}{2}=5$

UNIT—III

35. What are the chemical constituents of fats? Discuss the biological importances of fats. 2+3=5
36. Discuss, in detail, the role of steroid hormones in human body. 5

UNIT—IV

37. Describe the various procedures of blood collection. How are blood samples preserved? 3+2=5
38. What are the normal and pathological constituents of urine? Describe the process of urine formation in kidneys. 2+3=5

(7)

UNIT—V

39. What is urine analysis test? Discuss the methods of urine analysis. What diseases can be diagnosed by testing urines? 1+2+2=5
40. Discuss the method of blood analysis for clinically important parameters. 5
