JHARKHAND Rai University
RANCHI

PRACTICE SET
End Semester Examination, May 2026

Program: BMLT
Semester: II
Subject: Clinical Biochemistry-I
Subject Code: 42ABMT010

Course Outcome:
On the completion of the Course, the students will be able to:

Course Outcomes	Description
CO1	Provide knowledge about identifying the structural elements of different biomolecules.
CO2	Demonstrate the role of enzymes in the bio-reactions of a living cell and provide knowledge on the estimation of different enzymes in diagnosing diseases.
CO3	Study the structural, nutritional and diagnostic roles of carbohydrates and their metabolites in physiological and pathological processes.
CO4	Study the structural, nutritional and diagnostic roles of lipids and their metabolites in physiological and pathological processes.
CO5	Demonstrate the applicability of the metabolic role of proteins, amino acids and nucleic acids in various biological processes.

1. **Section A: 10 Marks Question covering All units (Total No. of questions 30)**
2. **Section B: 20 Marks Question covering All units (Total No. of questions 10)**

UNIT I

Section A (10 marks)

1. Define the biochemistry and its scope. (CO1, Remember, LOT)
2. Explain the fluid mosaic model of cell membrane. (CO1, Understand, LOT)
3. State the functions of cell membrane. (CO1, Understand, LOT)
4. Explain the oxidation-reduction reactions in cells. (CO1, Understand, LOT)
5. State the laws of thermodynamics in biological systems. (CO1, Understand, LOT)
6. Differentiate the catabolism and anabolism. (CO1, Analyze, HOT)

Section B (20 marks)

7. Outline the bioenergetics and the role of ATP as an energy currency in biological systems. (CO1, Analyze, HOT)
8. Evaluate the metabolism and differentiate between anabolic and catabolic pathways with examples. (CO1, Evaluate, HOT)

UNIT II

Section A (10 marks)

9. Define the enzymes and their properties. (CO2, Remember, LOT)
10. Explain the factors affecting enzyme activity. (CO2, Understand, LOT)
11. Define the coenzymes and isoenzymes. (CO2, Remember, LOT)
12. Review the clinical importance of enzymes in diagnosis. (CO2, Evaluate, HOT)
13. Write the normal values of serum enzymes. (CO2, Remember, LOT)
14. Analyze the enzyme kinetics. (CO2, Analyze, HOT)

Section B (20 marks)

15. Create the enzyme kinetics including Michaelis-Menten equation and factors affecting enzyme activity. (CO2, Create, HOT)

16. Evaluate the clinical enzymology and the role of enzymes in diagnosis of diseases. (CO2, Evaluate, HOT)

UNIT III

Section A (10 marks)

17. Define the carbohydrates and classify them. (CO3, Remember, LOT)
18. List the dietary sources of carbohydrates. (CO3, Remember, LOT)
19. Explain the digestion and absorption of carbohydrates. (CO3, Understand, LOT)
20. Review the disorders of carbohydrate metabolism. (CO3, Evaluate, HOT)
21. Explain the glucose tolerance test? (CO3, Understand, LOT)

22. Define the glycosuria. (CO3, Remember, LOT)

Section B (20 marks)

23. Analyze the glycolysis and TCA cycle with their significance. (CO3, Analyze, HOT)
24. Evaluate the diabetes mellitus, its types, biochemical basis, and diagnostic parameters (HbA1c). (CO3, Evaluate, HOT)

UNIT IV

Section A (10 marks)

25. Define the lipids and classify them. (CO4, Remember, LOT)
26. List the dietary sources of lipids. (CO4, Remember, LOT)
27. Explain the digestion and absorption of lipids. (CO4, Understand, LOT)
28. Define the cholesterol and its functions. (CO4, Understand, LOT)
29. Analyze the disorders of lipid metabolism. (CO4, Analyze, HOT)
30. Evaluate the significance of lipids in health and disease. (CO4, Evaluate, HOT)

Section B (20 marks)

31. Create the classification and biological importance of lipids in detail. (CO4, Create, HOT)
32. Evaluate the lipid profile and its role in diagnosis of cardiovascular diseases. (CO4, Evaluate, HOT)

UNIT IV

Section A (10 marks)

33. Define the proteins and amino acids. (CO5, Remember, LOT)
34. Classify the amino acids. (CO5, Remember, LOT)
35. Explain the digestion and absorption of proteins. (CO5, Understand, LOT)
36. Analyze the biological value of proteins. (CO5, Analyze, HOT)
37. Describe the urea cycle. (CO5, Understand, LOT)
38. Define the creatinine and uric acid. (CO5, Remember, LOT)

Section B (20 marks)

39. Analyze the structure and functions of DNA and RNA with differences. (CO5, Analyze, HOT)
40. Evaluate the protein separation techniques such as electrophoresis, chromatography, and spectroscopy. (CO5, Evaluate, HOT)

Summary Sheet

CO Wise

CO	Q. No	Marks
CO1	1,2,3,4,5,6,7,8	100
CO2	9,10,11,12,13,14,15,16	100
CO3	17,18,19,20,21,22,23,24	100
CO4	25,26,27,28,29,30,31,32	100
CO5	33,34,35,36,37,38,39,40	100
Total		**500**

Unit Wise

Unit	Q. No	Marks
Unit 1	1,2,3,4,5,6,7,8	100
Unit 2	9,10,11,12,13,14,15,16	100
Unit 3	17,18,19,20,21,22,23,24	100
Unit 4	25,26,27,28,29,30,31,32	100
Unit 5	33,34,35,36,37,38,39,40	100
Total		**500**

Blooms Taxonomy Level (BTL) Wise

BTL	Q. No	Marks
LOT	1,2,3,4,5,9,10,11,13,17,18,19,21,22,25,26,27,28, 33,34,35,37,38	230
HOT	6,7,8,12,14,15,16,20,23,24,29,30, 31,32,36,39,40	270
Total		**500**

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Disclaimer: -This is a Practice set. The Question in End term examination will differ from the Practice set. This Practice set is meant for practice only.