

BIOCHEMISTRY**PAPER-I**Time: 3 hours
Max. Marks:100

B.CHEM/D/20/03/I

Important Instructions:

- You are provided with 5 answer sheet booklets. Each individual answer sheet booklet consists of 10 pages excluding the covering jackets.
- Answers to all the questions must be attempted within these 5 answer sheet booklets which must be later tagged together at the end of the exam.
- No additional supplementary answer sheet booklet will be provided.
- Attempt all questions in order.
- Each question carries 10 marks.
- Read the question carefully and answer to the point neatly and legibly.
- Do not leave any blank pages between two answers.
- Indicate the question number correctly for the answer in the margin space.
- Answer all the parts of a single question together.
- Start the answer to a question on a fresh page or leave adequate space between two answers.
- Draw table/diagrams/flowcharts wherever appropriate.

Write short notes on:

1. Explain the role of iso-enzymes in the diagnosis, management and prognostication of diseases by citing suitable examples. 3+3+4
2. a) What do you understand by the term 'proficiency testing'? Explain its role in clinical chemistry. 4+6
b) What are the different ways of validating test reports in a clinical laboratory?
3. a) Write in brief about the various biochemical markers present in maternal serum for prenatal screening. 5+5
b) Write in brief about pancreatic function tests.
4. a) Explain the importance of sensitivity and specificity of a test. 5+5
b) What is paired Sample t test and Chi square test.
5. Explain why: 6+4
a) Adenosine deaminase (ADA) deficiency leads to severe combined immunodeficiency syndrome (SCID).
b) Vitamin B₁₂ deficiency leads to megaloblastic anaemia.
6. a) Write in brief about the role of kidney in the regulation of pH. 6+4
b) Write a note on diabetic keto-acidosis.
7. What are the types of proteinuria? Mention the causes and the types of proteins excreted in each condition. 5+5

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8. a) Explain the process of separation of different cellular organelles. 4+2+4
b) Add a note on the enzyme markers of any four cell organelle.
c) Cell cytoskeleton.
9. a) Explain the changes that happen in the hemoglobin structure at the molecular level when hemoglobin gets oxygenated. 4+3+3
b) Enumerate the various factors that affect the affinity of hemoglobin for oxygen.
c) Add a note on any one hemoglobinopathy highlighting the defect, clinical features and management.
10. a) Role of leptin in obesity. 4+6
b) Biochemical markers of malnutrition.

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