

**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 B<sub>12</sub> 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

**P.T.O.**

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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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