

**BIOCHEMISTRY**

**PAPER-I**

BCHEM/D/18/03/I

Time: 3 hours  
Max. Marks:100

**Important Instructions:**

- 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. a) Illustrate the electrophoretic pattern of the major plasma proteins. (3+3)+4  
Give details of the changes that occur in any three clinical conditions.  
b) Write a note on protein folding and functions of chaperone proteins.
2. a) Metabolism of alcohol in the body along with the detoxication 5+5  
mechanisms.  
b) Assessment and interpretation of arterial blood gases.
3. a) Write a note on the tests used to diagnose pre-renal, renal and post- 6+4  
renal causes of acute renal failure.  
b) Explain the causes and clinical significance of ketoacidosis with a suitable example.
4. a) Explain the biochemical basis of different types of jaundice. (3+3)+4  
Elaborate on the biochemical investigations that can be used to differentiate these.  
b) What is dietary fibre? Describe its clinical importance.
5. a) Write a note on micelles and liposomes. 5+5  
b) Give the names and functions of eicosanoids.
6. Give an overview of the mechanisms involved in regulating enzyme 4+3+3  
activity in the following giving a suitable example for each:  
a) Allosteric regulation.  
b) Covalent modification.  
c) Feedback inhibition.
7. Explain the use of the following in the clinical laboratory: - 4+3+3  
a) External quality control.  
b) Levey- Jennings charts.  
c) Westgard rules.

P.T.O.

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| 8.  | a) Criteria used for the evaluation of diagnostic tests.   | 5+5   |
|     | b) Give an overview of different research study designs.   |       |
| 9.  | a) Elaborate on any three data collection methods for qualitative research stating their advantages and limitations. | 6+4   |
|     | b) Wobble hypothesis.  |       |
| 10. | a) ANOVA.  | 3+3+4 |
|     | b) Chi- Square test and t- test.   |       |
|     | c) Correlation and regression coefficients in statistical analysis.  |       |

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