BIOCHEMISTRY

PAPER-I

Time: 3 hours

BCHEM/J/20/03/I

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) Role of kidney in the regulation of blood pH.   6+4
    b) Laboratory diagnosis of diabetic keto acidosis.

2. a) Describe the formation and excretion of bilirubin.   7+3
    b) Explain the biochemical basis of changes in total and direct serum bilirubin levels in different types of jaundice.

3. a) Write with two examples about biochemical basis of use of enzyme inhibitors as drugs.   6+4
    b) Explain clinical applications of isoenzyme assay with two suitable examples?

4. a) Write in brief about the various biochemical markers present in maternal serum for prenatal screening of Down syndrome? How are those test reports interpreted?   5+5
    b) List the clinically useful pancreatic function tests, their indications and interpretations.

5. a) List any five pre-analytical variables that influence laboratory test reports.   5+5
    b) Write measures to control them.

6. a) Explain how The Kcat/Km value of an enzyme can predict its catalytic efficiency.   5+5
    b) Acid base catalysis mechanism is essential for the digestive enzyme chymotrypsin.

7. a) What do you understand by the terms- ω-3, ω-6, ω-9 fatty acids?   3+7
    b) Give suitable examples of each and explain their biochemical significance.

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) Write a short note on cell cytoskeleton.

9. a) Write the difference between correlation and regression analysis.   4+3+3
    b) List the types of observational study design.
    c) How is sample size calculated in case-control study?

10. a) One-way ANOVA and its Post-hoc tests.   7+3
    b) Tests to check normal distribution of data.

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