

BIOCHEMISTRY

PAPER - IV

BIOCHEM /D/13/03/IV

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.

1. Define trace and ultra trace elements. Mention the functions of three most important essential trace elements. 4+6
2. Give a detailed account of collagen structure. Describe various steps in their maturation. 4+6
3. Enumerate the different phospholipases. Discuss their role in the generation of 2nd messengers. Discuss any two in detail. 2+2+6
4. Differentiate between: 4+3+3
 - a) Z-DNA and B-DNA
 - b) Glycoproteins & proteoglycans
 - c) Abzymes and ribozymes
5. What do you understand by multi enzyme complex & multi-functional enzyme? Describe each with one suitable example. 2+4+4
6. Discuss the role of the following in metabolism in humans: 3+3+4
 - a) Peroxisomes
 - b) Lysosomes
 - c) Smooth endoplasmic reticulum
7. Discuss the composition and functions of sphingolipids in humans. And a short note on sphingolipidosis. 7+3
8. Define 'Osmolarity' and 'Osmolality'. What is normal plasma osmolar concentration and how it is regulated? 3+2+5
9.
 - i) Discuss the structure of mitochondria and its role in lipid metabolism.
 - ii) Discuss the different mechanisms of protein degradation. 5+5
10. Discuss the role of: 3+4+3
 - a) Iron-sulphur proteins in mitochondria electron transport chain.
 - b) Cytochrome p450
 - c) Bile salts
