

BIOCHEMISTRY

PAPER-II

Time: 3 hours
Max. Marks:100

BCHEM/J/20/03/II

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. Explain how: 4+6
 - a) Phenylketonuria causes mental retardation and skin pigment disorder if not managed properly within first five years of life.
 - b) Kreb's bicycle effectively links the fates of amino groups and carbon skeleton of the amino acids.
2.
 - a) Leukotriene synthesis, function, pathogenetic role and its inhibitors. 7+3
 - b) Excretion of cholesterol from human body.
3. Explain how: 4+3+3
 - a) Cyanide exert its toxicity and its toxicity managed.
 - b) Thermogenin helps to maintain body temperature in hibernating animals and new born babies.
 - c) Thermodynamically unfavourable biochemical reactions occur in human body.
4.
 - a) Role of leptin in obesity. 5+5
 - b) Biochemical markers of malnutrition.
5.
 - a) How is heme synthesized? 6+4
 - b) Write biochemical basis of presentation of porphyria cases with acute abdomen and cutaneous lesion.
6. Explain why: 4+3+3
 - a) Vitamin B₁₂ deficiency leads to megaloblastic anaemia.
 - b) Folic acid should not be given alone when its deficiency coexists with vitamin B₁₂ deficiency.
 - c) Histidine load test is negative in vitamin B₁₂ deficiency.
7. Define dietary fiber. Classify them. Write their functions and therapeutic uses. 2+2+4+2

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8. Explain why: 3+4+3
- a) AMP concentration is a more sensitive indicator of the cell's energetic state than that of ATP.
 - b) Deficiency of pyruvate kinase leads to haemolytic anaemia.
 - c) Patient on haemodialysis is administered carnitine to prevent development of hypoglycaemia.
9. Write biochemical basis of physiological serum cholesterol homeostasis, hypercholesterolemia in hypothyroidism and diabetes and their management. 3+4+3
10. Define sub-clinical hypothyroidism. How primary, secondary and tertiary hypothyroidism can be differentiated by thyroid function testing in laboratory. 2+8
