

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

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