

BIOCHEMISTRY

PAPER-II

BCHEM/D/19/03/II

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) Energy value of foods. 5+5
b) Enumerate two physiological and three pathological conditions which affect the Basal Metabolic Rate.
2. Discuss Obesity and how it can be managed through low calorie diet and exercise. 4+6
3. a) Disorders associated with altered G-Protein activity. 5+5
b) Disorders associated with deficiency and excess of Growth hormone.
4. Enlist two 5 Carbon, one 7 Carbon, one 4 Carbon and one 6 Carbon Sugar derivatives formed in the pentose phosphate pathway. Which of the above derivatives are used for nucleic acid synthesis? And which metabolite(s) is/are shunted to glycolytic pathway? 6+2+2
5. Sketch the chronology of events which food starch undergoes till it is used for the synthesis of ATP in inner mitochondrial membrane. 10
6. Describe the functions of: 3+3+4
a) Arachidonic acid.
b) Slow Reacting Substances-A.
c) Phospholipase A2 in lipid metabolism.
7. How do calcitonin and calcitriol maintain the homeostasis of calcium? Add a note on Calcium in diet and osteoporosis. 6+(2+2)
8. Why folic acid and vitamin B12 are given together in the treatment of macrocytic megaloblastic anemia? Explain the absorption of extrinsic factor of Castle. 5+5
9. Describe the biosynthesis of serotonin. Explain malignant carcinoid syndrome, and its clinical & biochemical manifestations. 5+5
10. a) Lohmann's reaction. 5+5
b) Substrate level phosphorylation.
