

**B.P.T. [1<sup>st</sup> Prof.]**

**BF/2006/11**

## **Biochemistry**

**M.M. : 90**

**Time : 3 Hours**

### **SECTION - A**

*All questions are compulsory. Answer to each question upto 5 lines in length. Each question carries 2 Marks.* [20]

1. Define Carbohydrates. Which is the major carbohydrate yielding energy in the body?
2. Write the Henderson-Hasselbalch equation.
3. What are Nucleic acids? How many types are they of?
4. What is the Km value of an enzyme? Write the equation for it.
5. Explain with a suitable example what is a Zwitterion.
6. What are Zymogens? Give examples.
7. Name the Ketone bodies Which is the primary Ketone body?
8. What is specific dynamic action?
9. What are Lipoproteins? How are they classified?
10. What are the three constituents of a Nucleotide? How does it differ from a Nucleoside.

### **Section - B**

*Attempt any 8 questions. Answer to each question upto 2 pages in length. Each questions carries 5 Marks.* [40]

1. Describe the structural organization of a protein.
2. Explain the term Transamination with suitable examples. What is the metabolic importance and clinical application of transaminase estimation.
3. Define Oxidative phosphorylation and explain the chemiosmotic theory.
4. What is cyclic AMP? Describe its role as a second messenger.
5. How is Bilirubin formed in the body and how is it excreted?
6. Classify enzymes in the correct order giving at least two examples of each class with the reactions catalyzed by them.
7. Describe in detail the structure of the cell membrane and list its functions.
8. Write a note on the disease "Diabetes Mellitus".
9. Describe the process of Glycogenesis.
10. Discuss the role of Isotopes in the diagnosis and treatment of diseases.
11. What is the functional role of Creatine? How is it synthesized and how is it excreted?
12. Describe the diseases caused by deficiency of the following Vitamins:
  - a. Thiamine.
  - b. Niacin.

### **SECTION - C**

*Attempt any 2 questions. Answer to each question upto 5 pages in length. Each questions carries 15 Marks.* [30]

1. What is  $\beta$ -oxidation of fatty acids and why is it so called? Describe this process in detail and calculate the amount of energy formed by the complete oxidation of one molecule of Palmitic acid.
2. Draw the Kreb's citric acid cycle and explain the reactions in detail. Why is this cycle called an amphibolic pathway?
3. What are the sources, daily requirements and biochemical functions of Vitamin C? Describe the disease caused by its deficiency.
4. Describe the process of replication of DNA. Why is replication of DNA called semi-