B.N.BANDODKAR COLLEGE OF SCIENCE, THANE

S.Y. B.Sc ATKT EXAMINATION FEBRUARY 2011

BIOTECHNOLOGY Paper –III

Total Marks: 90

Duration: 3hrs.

NB:

1. **Illustrate your answers with suitable examples.**
2. **All Questions carry equal marks.**

Section 1

Q 1. A. Explain: **3M**

1. Isoenzyme
2. Turnover number
3. Mixed inhibition

B. Answer the following (any 3) **12M**

1. Derive Michaelis Menton equation
2. Write a note on allosteric enzymes
3. Discuss feed back inhibition with suitable examples
4. Discuss the role of different physiological variables on enzyme activity
5. Write a note on different mechanisms of enzyme inhibition.

Q 2. Explain: **3M**

1. Deamination
2. beta oxidation
3. TCA

B. Answer the following (any 3) **12M**

1. Write a note on mechanisms of breakdown of fatty acids
2. Write a note on Urea cycle
3. Elaborate on enegy yield of glycolysis and its regulation.
4. Schematically explain: TCA
5. Write a note on fate of amino acids.

Q 3.A. Answer in one sentence **3M**

1. State Beer- Lambert's Law
2. What is Rf value
3. Give examples of Detection systems used for detection of amino acid

B. Answer the following (any 3) **12M**

1. Write a note on limitations of Beer Lambert's Law
2. Diagrammatically explain column chromatography
3. Discuss TLC technique
4. Explain different types of paper chromatography techniques
5. What is distribution co-efficient ? explain its importance

Section 2

Q 4. **.A. Answer in one sentence** **3M**

1. Define enthalpy
2. Give examples of water soluble vitamins
3. What if Entropy?

B. Answer the following (any 3) **12M**

1. Justify: vitamins play important role in optimal body development
2. Briefly explain laws of thermodynamics
3. Write a note on vitamin B12 complex and state its importance
4. Discuss ATP as energy currency
5. Give structure and function of vitamin C and vitamin D

Q 5. **A. Answer in one sentence** **3M**

1. Define: Redox potential
2. Give examples of inhibitors of ETC
3. Give two carriers involved in non cyclic photophosphorylation

B. Answer the following (any 3) **12M**

1. Diagrammatically explain: electron flow from complex 1 – 4
2. Differentiate between oxidative and reductive phosphorylation
3. Explain in detail: Z pathway
4. Give details of reductive tca
5. Write a not on cyclic and non cyclic phosphorylation.

Q 6. **A. Explain the term:**

1. SDS-PAGE
2. SEM
3. TEMED

B. Answer the following (any 3)

1. Write a note on types of electrophoresis
2. Give detail account of AGE
3. Discuss Fluorescence microscopy and state the applications.
4. Justify Electrophoresis is one of the most important techniques in biotechnology
5. Write a note on Factors affecting electrophoretic mobility.