

Date : 30/09/15

CD-30/09/15 BIOTECHNOLOGY-II S.Y.B.SC. SEM III EXAM MARKS 75 2^{1/2} HRS (80)

- All questions are compulsory.
- Figures to Right indicate marks.
- Draw diagram wherever necessary.

Q.I) A) Explain the following (any four) (08)

1. Competitive Inhibition
2. Isozymes
3. Rate-Limiting Step
4. Cofactor
5. Double Reciprocal Plot
6. Suicide Inhibitors
7. Noncompetitive Inhibition
8. V_{max}

Q.I) B) Answer the following. (any two) (12)

1. State Hypothesis of Enzyme substrate Binding.
2. Derive the Michaelis-Menten Equation for enzyme kinetics.
3. Explain the reversible Enzyme Inhibition.
4. Factors affecting Enzyme Substrate Binding.

Q.II) A) Draw structure of the following molecules. (any two) (04)

1. 2-Phosphoglycerate
2. Citrulline
3. α ketoglutarate
4. Serine

Q.II) B) Give the significance of following enzymes with suitable reaction (any two) (04)

1. Arginase
2. Enoyl Co-A Hydratase
3. Acyl Co-A Synthetases
4. PDH complex

Q.II) C) Answer the following. (any two) (12)

1. Explain the Splitting and Energy generation phase of glycolysis with suitable reactions.
2. Give a brief account on Regulation of TCA.
3. Explain the reactions involved in Carnitine Shuttle pathway.
4. What is ω - oxidation of fatty acids ? Explain with suitable reactions.

Q II) A) Give significance of the following in Electron transport chain (any two) (04)

1. Cytochrome bc1
2. Light harvesting complexes
3. β subunit of ATP synthase
4. Membrane potential

Contd/2...

Q.II(B) State whether the following statements are true or false. (any four) (04)

1. Plastoquinone is a functional homologue of cytochrome C.
2. PS-I absorption maxima is at 700 nm.
3. Cyanide is an uncoupler of oxidative phosphorylation.
4. Chl -b is the major light absorbing pigment in photophosphorylation.
5. In photophosphorylation light energy is converted into chemical energy.
6. The oxidative phosphorylation takes place in chloroplast.
7. $FADH_2$ enters from the complex-I of electron transport chain.
8. 1.5 ATPs are formed when $FADH_2$ is a first electron donor in oxidative phosphorylation.

Q.II(C) Explain (any two) of the following. (12)

1. Noncyclic chloroplast ETC with schematic representation.
2. Significance of oxidative phosphorylation.
3. Mode action of any one uncoupler in mitochondrial ETC.
4. Synthesis and release of ATP by complex V of oxidative phosphorylation.

Q.IV Write a note on (any Three) of the following (15)

1. Binding Energy
2. Applications of Cellulases
3. Oxidation of Monounsaturated Fatty acids
4. Deamination.
5. Electron carriers of cyclic photophosphorylation.
6. Role of proton motive force in ATP synthesis.