

Date : 30/09/15

VCD-30/09/15 BIOTECHNOLOGY-II S.Y.B.SC. SEM III EXAM MARKS 75 2<sup>1/2</sup> 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 | 5. Double Reciprocal Plot    |
| 2. Isozymes               | 6. Suicide Inhibitors        |
| 3. Rate-Limiting Step     | 7. Noncompetitive Inhibition |
| 4. Cofactor               | 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 | 3. $\alpha$ ketoglutarate |
| 2. Citrulline         | 4. Serine                 |

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

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

**QII) 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 Camitine Shuttle pathway.
4. What is  $\omega$  - 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.  $\beta$  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.

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