

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

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

(08)

- |                           |                    |
|---------------------------|--------------------|
| 1. Zymogen                | 5. Turnover Number |
| 2. Suicide Inactivators   | 6. Binding Energy  |
| 3. Double Reciprocal Plot | 7. Holoenzyme      |
| 4. Feedback Inhibition    | 8. Cofactor        |

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

(12)

1. Explain the process by which enzymes accelerate reaction rates.
2. Derive the Michaelis-Menten Equation for enzyme kinetics.
3. Discuss the Regulation of enzyme activity by Phosphorylation and Allosteric enzymes.
4. Write an account on Isozymes.

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

(04)

- |                                |                  |
|--------------------------------|------------------|
| 1. Pyruvate                    | 3. Succinyl Co-A |
| 2. Glyceraldehyde 3- phosphate | 4. Oxaloacetate  |

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

- |                        |                               |
|------------------------|-------------------------------|
| 1. Phosphofructokinase | 3. Triose phosphate isomerase |
| 2. Citrate synthase    | 4. Lactate dehydrogenase      |

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

(12)

1. Give brief account on bioenergetics of aerobic oxidation of one glucose molecule.
2. What is the significance of carnitine ? Explain carnitine cycle.
3. What is  $\beta$  - oxidation of fatty acids ? Explain with suitable reactions.
4. Explain the preparatory phase of glycolysis with suitable reactions.

Q. III) A) Choose the correct alternative and rewrite the complete sentence. (any four) (04)

1. Speed of light is \_\_\_\_\_.

- |                          |                          |
|--------------------------|--------------------------|
| a. $3.0 \times 10^8$ m/s | c. $4.5 \times 10^8$ m/s |
| b. $6.0 \times 10^8$ m/s | d. $1.0 \times 10^8$ m/s |

2. \_\_\_\_\_ is used as a source of visible radiation.
- Hydrogen lamp
  - Deuterium lamp
  - Nernst glower
  - Tungsten filament lamp
3. In plane chromatography, \_\_\_\_\_ phase is coated on plane surface.
- Stationary
  - Mobile
  - Solvent system
  - Solvent front
4. Cellulose is a homopolysaccharide of \_\_\_\_\_, linked through oxygen atoms.
- Sucrose
  - Galactose
  - Glucose
  - Fructose
5. In paper chromatography, sample is applied by using devices such as \_\_\_\_\_.
- Capillary tube
  - Pin
  - Pencil
  - None of the above
6. An ideal solvent system should be chosen such that the two phases are \_\_\_\_\_.
- Diluted
  - Concentrated
  - Immiscible
  - Coloured
7. The material of which the thin layer is prepared to be mixed with \_\_\_\_\_ to make slurry.
- Acetone
  - Formaldehyde
  - Ethyl alcohol
  - Water
8. In column chromatography, columns have \_\_\_\_\_ at the bottom to support stationary phase.
- Plastic
  - Sintered glass plate
  - PVC
  - Ash

**Q. III) B) Explain the terms. (Any two)**

(04)

- Polychromatic source of light
- Frequency of a light
- Cuvette
- Filters

**Q. III) C) Explain the following.(any two)**

(12)

- Any two types of paper chromatography.
- The columns used in column chromatography.
- Principle of Thin Layer Chromatography and add a note on its advantage.
- Bouger- Lambert law of absorption.

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

(15)

- Reversible Enzyme Inhibition
- Difference between Synthase and synthetase.
- Souring of muscles
- PDH complex
- Applications of colorimeter.
- Wavelength selector in colorimeter

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