M.Sc. BOTANY THIRD SEMESTER BIOCHEMISTRY AND PLANT PHYSIOLOGY MSB-303 B

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 1hr. 30 mins.

Full Marks: 35

Time: 15 mins.

Objective

Marks: 10

2023/12

SET

Choose the correct answer from the following:

 $1 \times 10 = 10$

1. Number of maximum electrons in the *d* subshell are:

a. 8

b. 12

c. 10

d. 14

2. ATP synthatase activity is associated with the mitochondrial enzyme complex:

a. Enzymes are adsorbed on the surface active support followed by intermolecular cross linking

c. Enzymes are cross linked intermolecularly

b. Functional groups are introduced on the support to react co-valently with enzymes

- d. Enzymes are cross linked intermolecularly
- The bond between two identical non metal atoms has a pair of electrons. The correct statement about this pair is:

a. Unequally shared between the two

b. Transferred fully from one atom to another

c. Has identical spins

d. Equally shared between the atoms

In an open system, for maximum work, the process must be entirely:

a. Irreversible

b. Reversible

c. Adiabatic

d. None of the above

Whenever a system undergoes either a change in state or an energy or mass transfer at a steady state, it is said to undergo:

a. A change of state

b. A process

c. A steady state transfer

d. An equilibrium

Match the following enzymes and its product:

a. Succinyl thiokinase

1. Citrate

b. Succinyl dehydrogenase

2. Isocitrate

c. Aconitase

3. Fumerase

d. Citrate synthase

4. Succinate

1

a. a-3b-4c-2d-1

b. a-4b-3c-1d-2

c. a-4b-3c-2d-1

d. a-4b-2c-3d-1

- 7. What do inhibitors of complex III of electron transport system in oxidative phosphorylation do?
 - a. Blocks the transfer of reducing equivalents from Fe-S to ubiquinone-Q
 - c. ETC takes place but inhibits phosphorylation
- b. Prevents transfer of electrons from cytochrome aa3 to molecular oxygen
- d. Prevent transfer of electrons from cytochrome b to cytochrome C1
- 8. Which of the following supplies the two carbon units that are added to the elongation of fatty acids?
 - a. Acetyl CoA

b. Malonyl CoA

c. β-keto-acylCoA

- d. Pyruvate
- 9. ATP synthatase activity is associated with the mitochondrial enzyme complex: a. IV b. II

c. V

- d. III
- 10. What is the function of phosphorylase?
 - a. Transfer inorganic phosphate
- b. Transfer a carboxylate group
- c. Use H2O2 as the electron acceptor
- d. Transfer amino group

USTM/COE/R-01

(Descriptive)

Time: 1 hr. 15 mins.

[Answer question no.1 & any two (2) from the rest] 5 Justify why ATP is considered as the energy currency of the cell. 1. Describe the various steps of β -oxidation of saturated fatty acid. 2. 8+2=10 Why it is called as the most energy yielding process of biological oxidation? Justify. 5+5=10 3. Write correct answers. a) Buffer does not allow any change of pH in a chemical reaction. Justify why? b) Role of pyruvate dehydrogenase complex in the conversion of pyruvate to acetyl CoA during respiration. Discuss the process of ATP production by electron transport in aerobic 10 respiration. Discuss the role of Fatty acid synthatase in various steps of biosynthesis 10 5. of fatty acid.

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Marks: 25