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SARDAR PATEL UNIVERSITY

B.SC. (semester-6) EXAMINATION

BOTANY-US06CBOT23 (PLANT BIOCHEMISTRY)

17-07-2021, SATURDAY, TIME: 10 AM TO 12 PM.

QUE-1Multiple choice questions (10)

(1) Kranz anatomy is found in the leaves of

a. Wheat
b. Mustard
c. Potato
d. Sugarcane

(2) C3 and C4 plants differ with respect to

a. Number of ATP molecules consumed
b. First product
c. The substrate which accepts carbon dioxide
d. All

(3) The first acceptor of CO_2 in C4 plants is

a. Aspartic acid
b. Malic acid
c. Oxaloacetic acid
d. Phosphoenolpyruvate

(4) Name the pathway for glucose synthesis by non-carbohydrate precursors?
a) Glycogenesis
b) Glycolysis
c) Gluconeogenesis
d) Glycogenolysis

(5) Name the enzyme which is responsible for the conversion of pyruvate to phosphoenolpyruvate (PEP)?
a) Pyruvate carboxylase

b) Pyruvate carboxykinase
c) Glucose 6-phosphatase
d) Phosphofructokinase

(6) Which of the intermediate of the Kreb's cycle is utilised in the formation of amino acids?

(a) Citric acid

(b) Malic acid

(c) Isocitric acid

(d) α-ketoglutaric acid

(7) Through which process, the catabolism of fat occurs?
A. Beta oxidation B. Omega oxidation
C. Alpha oxidation D. All of the above

(8) After each oxidation cycle, how many carbons are removed?
A. 2 B. 1
C. 3 D. 4

(9) A _____is a biocatalyst that increases the rate of the reaction without being changed.
a) Aluminum oxide
b) Silicon dioxide
c) Enzyme
d) Hydrogen peroxide

(10) The nature of an enzyme is

(a) Lipid

(b) Vitamin

(c) Carbohydrate

(d) Protein and Nucleotide

Que-2 Fill in the blank or true false (08)

(1) Lock and Key model is also known as_____.

(2) Uncatalyzed reaction shows _____ activation energy.

(3) Nitrogen is absorbed by the plants in the form of----------

(4) Conversion of nitrates to nitrogen is called_____

(5) Another name of TCA cycle_____

(6) Glycolysis is taking place in_____

(7) Green plans prepare their food by using two raw materials, oxygen and water.(True or False)

(8) The free oxygen in the atmospheric air is the result of photosynthesis.(True or Flase)

Que-3 Answer in short (any 10) (20)

1. How does the anatomy of a typical C4 leaf differs from that of C3 leaf?
2. What is Kranz anatomy?
3. Define accessory pigments. State their significance in photosynthesis.
4. What are the major pathways of carbohydrate metabolism?
5. What are the waste products of carbohydrate metabolism?
6. Why TCA cycle is known as amphibolic pathway?
7. What is nitrogen metabolism in plants?
8. What are the 4 steps of the nitrogen cycle?
9. What is nitrification?
10. What are enzymes? Discuss their nature.
11. What is induced fit Model? Give its significance
12. Differentiate between apoenzyme and holoenzyme.

Que-4 Write in detail on any four. (32)

1. Synthesis and catabolism of sucrose and starch
2. Differentiate between C3 and C4 plants
3. Write anaplerotic reactions of TCA cycle.
4. Write a note on gluconeogenesis.
5. Biological nitrogen fixation
6. Transamination
7. concept of holoenzymes,coenzymes, apoenzymes & prosthetic groups
8. Allosteric enzymes.

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