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SARDAR PATEL UNIVERSITY

B.SC. (semester-6) EXAMINATION

BOTANY-US06CBOT23 (PLANT BIOCHEMISTRY)

25-6-2022, SATURDAY, TIME: 10AM TO 12PM.

Que-1 MCQ

(10)

1. Oxygen liberated during photosynthesis comes from
a. Water b. PGA c. Chlorophyll d. Carbon dioxide
2. All photosynthetic green plants contain
a. Chlorophyll a b. Chlorophyll b c. Chlorophyll c d. Chlorophyll d
3. First stable product of carbon assimilation is
a. Phosphoglycerate b. Starch c. Glucose d. Ribulose
4. Name the pathway for glucose synthesis by non-carbohydrate precursors?
a) Glycogenesis b) Glycolysis c) Gluconeogenesis d) Glycogenolysis
5. Name the type of the pathway which is involved in the synthesis of compounds?
a) Anabolic pathways b) Catabolic pathways
c) Amphibolic pathway d) Anapleurotic pathway
6. Which of the following cycle shows amphibolic pathway?
a) Glyoxylate b) Citric acid cycle c) Glycolysis d) Lipid metabolism
7. How many ATPs are formed in case of stearic acid by beta oxidation
a) 7 b) 18 c) 56 d) 147
- (8) Which one of the following is a macromolecule ?
A. Fatty acid B. Sugar C. Nucleic acid D. Amino acid
- (9) Bacteria which, in association with legume roots, fix atmospheric nitrogen are called
A. *Azotobacter* B. *Rhizobium* C. *Pseudomonas* D. *E.coli*
- (10) The nature of an enzyme is..
A. Lipid B. Protein and Nucleotide C. Vitamin D. Carbohydrate

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 plants 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 False)

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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