

KERALA AGRICULTURAL UNIVERSITY
B.Sc.(Hons.) Agriculture – 2008 Admission - IInd Semester
Supplementary Examination – March 2010

Cat. No. : Ssac 1202

Max. marks: 80

Title : **Agricultural Biochemistry (2+1)**

Time : 3 hours

I. Answer all questions

(20 x 0.5 = 10)

Fill up the blanks

1. The major carbohydrate of plant cell wall is -----.
2. The amino acids found in proteins are usually of ----- configuration.
3. A triacylglycerol contains ----- fatty acids.
4. In L-glucose, hydroxyl group on the penultimate carbon atom is on ----- side.
5. In aerobic condition, the end product of glycolysis is -----.
6. The first stable compound formed in Calvin cycle is -----.
7. Nucleosides contain a base and -----.

Match the following

- | | |
|-------------------|-------------------------|
| 8. Ribose | a. High energy compound |
| 9. Alanine | b. Enzyme |
| 10. Nicotine | c. Amino acid |
| 11. Phospholipids | d. Alkaloid |
| 12. ATP | e. Cell membrane |
| 13. Hexokinase | f. Pentose |

State True or false

14. Proline gives a purple coloured complex with ninhydrin.
15. Rancidity of fat is characterized by acid number.
16. Lactose contains a glucose and fructose.
17. Pentose phosphate pathway generates NADH and ribose.
18. The sugar present in DNA is ribose.
19. Beta oxidation of fatty acids occurs in mitochondrial matrix.
20. C₄ cycle operates in sugarcane.

II. Write answers in a word or sentence

(10 x 1 = 10)

1. Optically inactive amino acid.
2. To which major class of enzymes does kinases belong to?
3. Define saponification number.
4. Define homopolysaccharides.
5. How many ATP molecules are produced during one round of TCA cycle?
6. Define glycolysis.
7. The initial electron acceptor in the oxidation of several substrates through the respiratory chain.
8. The cofactor required by transaminases.

9. Name the two carbon units produced during beta oxidation of even chain fatty acids.
10. Which RNA functions as an adaptor in protein synthesis?

III. Write short notes on ANY TEN

(10 x 2 = 20)

1. Structure of cell membrane
2. Plant proteins
3. Phospholipids
4. Biodegradable plastics
5. Structure of amylose
6. Differentiate DNA and RNA.
7. Oxidative phosphorylation
8. Decarboxylation of amino acids
9. Biosynthesis of sucrose
10. Regulation of photosynthesis
11. Classification of terpenoids
12. Applications of phenolics

IV. Write short essays on ANY FOUR of the following

(4 x 5 = 20)

1. Explain the factors affecting enzyme activity.
2. Discuss on the industrial applications of lipids.
3. Give an account on the structure of DNA.
4. Explain the reactions of glyoxylate cycle.
5. What is photorespiration? Explain.
6. Explain the classification of alkaloids with examples.

V. Write essays on ANY TWO

(2 x 10 = 20)

1. Explain the general groups of biomolecules and their importance.
2. Explain the biosynthesis of proteins.
3. Give an account on the integration of intermediary metabolism of carbohydrate, lipids and amino acids.