

Cat. No: Ssac.1202

Marks: 80

Title: Agricultural biochemistry (2+1)

Time: 3 hours

**I. Fill in the blanks**

(10 x 1=10)

1. Pyrimidine bases present in DNA are \_\_\_\_\_ and \_\_\_\_\_.
2. Competitive inhibitor of succinate dehydrogenase is \_\_\_\_\_.
3. The red coloured pigment of tomato is due to \_\_\_\_\_.

**State True or False:**

4. Nitrogen gas is the mobile phase in gas chromatography
5. Increase in substance concentration increases the velocity and obtain a bell shaped graph.
6. Optical activity is measured using spectrophotometer .

7. Golden rice is rich in vitamin D.

**Choose the correct answer**

8. Sorbitol is the alcohol of  
a) Glucose    b) sucrose    c) maltose    d) Lactose.
9. Xylose is a \_\_\_\_\_ sugar  
a) Triose    b) pentose    c) diose    d) Hectose .
10. Which of the following are weak forces associated with the interaction of biological molecules?  
a) Hydrogen bonding    b) Electrostatic interaction    c) Covalent bonding    d) Both a & b

**II Write short notes on any TEN**

(10 x 3=30)

1. What are plant hormones?
2. Rancidity.
3. Allosteric inhibition.
4. Zwitter ions.
5. Secondary structure of proteins.
6. Structure of t-RNA.
7. Functions of lipids.
8. Significance of physical and chemical constraints in the identification of fats and oils.
9. Essential fatty acids.
10. Reducing sugars.
11. Glycolysis.
12. The linkage between glucose and galactose.

**III Explain any SIX of the following**

(6 x 5=30)

1. DNA structure and function.
2. Chart the reactions involved in glyoxylate cycle.
3. Difference between C<sub>3</sub> and C<sub>4</sub> pathway.
4. Mechanism of enzyme action.
5. Structure of eukaryotic cell.
6. Brief functions of chloroplast and mitochondria.
7. Define replication. Show that DNA replication is a semi conservative process with Meselson & Stahl experiment.
8. Biosynthesis of fatty acids.

**IV Write essay on ANY ONE**

(1 x 10=10)

1. Sketch the reactions of TCA cycle and explain its role in metabolic process.
2. Explain calvin cycle.