

**2025**

**( FYUGP )**

**( 6th Semester )**

**BOTANY**

**( MAJOR )**

**Paper : BCC-13(T)**

**( Plant Metabolism )**

**Full Marks : 75**

**Pass Marks : 40%**

**Time : 3 hours**

**The figures in the margin indicate full marks  
for the questions**

- 1. Discuss in detail the synthesis and  
degradation of sucrose in plants. 15**

**Or**

**Write notes on the following :  $7\frac{1}{2} \times 2 = 15$**

- (a) Role of regulatory enzyme in regulation  
of metabolism**
- (b) Anabolic and catabolic pathway**



2. Explain  $C_4$  pathway of photosynthesis. Add a note on the role of photosynthesis pigments.

8+7=15

Or

Write notes on the following :

$7\frac{1}{2} \times 2 = 15$

- (a) Mechanism of ATP synthesis in photochemical reaction
- (b) Photorespiration

3. Describe the reactions of TCA cycle indicating the enzymes involved and the site of ATP synthesis with labelled diagram.

15

Or

Write notes on the following :

$7\frac{1}{2} \times 2 = 15$

- (a) Glycolysis
- (b) Pentose phosphate pathway

4. What is signal transduction? Explain the role of cGMP in plant signal transduction.

15

Or

Write notes on the following :

$7\frac{1}{2} \times 2 = 15$

- (a) Second messenger concept
- (b) Calcium calmodulin



( 3 )

5. Discuss in detail the steps involved in  $\beta$ -oxidation and its role in mobilisation of lipids. 15

Or

Write notes on the following :  $7\frac{1}{2} \times 2 = 15$

- (a) Nitrate assimilation
- (b) Synthesis of triglycerides

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