



বিদ্যাসাগর বিশ্ববিদ্যালয়  
**VIDYASAGAR UNIVERSITY**

**Question Paper**

**B.Sc. Honours Examinations 2020**

(Under CBCS Pattern)

**Semester - VI**

**Subject: BOTANY**

**Paper: CC - 13 (T + P) (Plant Metabolism – Theory + Practical)**

**Full Marks: 40 (Theory) + 20 (Practical) = 60**

**Time: 4 Hours**

*Candidates are required to give their answer in their own words as far as practicable.  
Questions are of equal value.*

Answer any **one question** [within 250 words] from each Part.

**Part A: Plant Metabolism (Theory)**

1. Give a brief account of cyclic electron transport system in photosynthesis.
2. Distinguish between  $C_3$  and  $C_4$  plants.
3. Define photorespiration mentioning its significance.
4. What is CAM? Mention its significance.
5. Give an account about the chemosynthetic process.
6. Give a detail account of the mechanism of transamination in plants.
7. What are “nod” and “nif” genes? Mention the physiological functions of leg-haemoglobin.



8. Describe the  $\beta$ -oxidation process with its relative importance in plant life.
9. Give a brief account of glyoxylate pathway.
10. Give a detailed account of cyanide-resistant respiration process. Mention its significance.
11. Describe the steps of Pentose phosphate pathway of sugar breakdown in plants.
12. Differentiate between competitive and non-competitive enzyme inhibitors.

### **Part B: Plant Metabolism (Practical)**

1. Mention the procedure to demonstrate Hill's reaction.
2. Write down the experimental procedure of chemical separation of photosynthetic pigments.
3. Mention the procedure to demonstrate the effect of light intensity on the rate of photosynthesis.
4. Mention the procedure to demonstrate the effect of carbon dioxide on the rate of photosynthesis.
5. Mention the procedure to compare the rate of respiration in different parts of a plant.
6. Write down the experimental procedure to determine the activity of nitrate reductase in germinating leaves.
7. Write down the experimental procedure to determine the activity of lipase in germinating oil seeds.
8. Mention the procedure to demonstrate fluorescence in extracted chlorophylls.
9. Mention the procedure to demonstrate the absorption spectrum of photosynthetic pigments.
10. Write down the principle for chemical separation of photosynthetic pigments.
11. Mention requisites to demonstrate the effect of carbon dioxide on the rate of photosynthesis.
12. Mention requisites to compare the rate of respiration in different parts of a plant.