

**B.Sc. IV - Semester Examination****CBS-IVs/4(P)****25209****BOTANY****Course No. : UBOTC-401***Time Allowed : 2½ Hours**Maximum Marks : 80***SECTION - I**

Attempt ALL questions, each question carries 3 marks.

**(5×3=15)**

1. Define water potential and osmosis in plants.
2. Differentiate between active and passive transport in plants.
3. Draw Krebs cycle.
4. What is nitrogen fixation? Write its various types!
5. What are phytochromes? Discuss their significance!

**SECTION - II**

Attempt ALL questions, each question carries 7 marks.

**(5×7=35)**

6. Write mechanisms of opening and closing of stomata.
7. What is source-sink relationship? Write briefly about factors affecting phloem translocation.

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8. Draw schemes of glycolytic and pentose phosphate pathway.
9. What is  $\beta$ -oxidation pathway? Write its biological significance in plants.
10. What is seed dormancy and seed germination? Write in detail factors affecting these two phenomena.

**SECTION - III**

Attempt any TWO questions, each question carries 15 marks.

**(2×15=30)**

11. Define enzyme activity regulation. Write in detail various mechanisms of enzyme action.
12. What do you understand from macro- and micro- elements requirement of plants? Write importance of Ca, N, Mg, P and K and their deficiency symptoms in plants.
13. Write in detail about oxidative phosphorylation and mechanism of ATP synthesis. <https://www.jktopper.com>
14. Define secondary metabolism, its concept and role in plants. Write in detail phenylpropanoid and shikimic acid pathway and their significance in plants.
15. What are cytokinins and abscisic acid? Define their role and mode of action in plants.

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