



WEST BENGAL STATE UNIVERSITY  
B.Sc. Honours 6th Semester Examination, 2023

**BOTACOR13T-BOTANY (CC13)**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.  
Candidates should answer in their own words and adhere to the word limit as practicable.  
All symbols are of usual significance.*

1. Answer *all* questions briefly from the following: 1×6 = 6
- (a) What do you mean by catabolic pathway? Give an example.
  - (b) What are uncouplers?
  - (c) Name the enzymes required for catabolism of sucrose and starch.
  - (d) What is glucogenic amino acid?
  - (e) What is quantum yield?
  - (f) Why ATP is called energy currency?
2. Answer any *eight* questions from the following: 3×8 = 24
- (a) Indicate the reactions where C4 and C7 sugars are involved in the oxidative pentose phosphate and reductive pentose phosphate pathways.
  - (b) Write a note on the anaplerotic reactions in relation to TCA cycle.
  - (c) Write briefly on the calcium calmodulin concept as second messenger.
  - (d) Schematically show the biochemical reactions of  $\beta$  oxidation of fatty acids.
  - (e) Give the biochemical reaction and the enzymes involved in the conversion of Pyruvic acid to Acetyl CoA. 1  $\frac{1}{2}$  + 1  $\frac{1}{2}$
  - (f) State the significance of cyanide resistant respiration.
  - (g) Discuss the role of GS and GOGAT in ammonium assimilation.
  - (h) Differentiate between absorption spectrum and action spectrum.
  - (i) Write a note on Blackman law of limiting factors.
  - (j) Differentiate between pigment system-I and pigment system-II.
  - (k) Write a note on oxygen evolving complex.
  - (l) Briefly explain the carbon concentrating mechanisms in plant.
3. Answer any *two* questions from the following: 5×2 = 10
- (a) Write a note on G-protein induced mechanism of signal transduction.
  - (b) Comment on the different types of phosphorylation in plant metabolism. Draw the structure of ATP synthase. 3+2
  - (c) With proper illustration discuss the binding change mechanism of ATP synthesis. 2+3
  - (d) Give the schematic representation of crassulacean acid metabolism and dark CO<sub>2</sub> fixation.

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