P.G. Semester-II Examination, 2023

BOTANY

Course ID : 21352 **Course Code : BOT202C(T)**

Course Title : Biochemistry and Molecular Biology of Plants

Time : 2 Hours Full Marks : 30

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer **all** the questions.

GROUP-A

(Biochemistry)

1. Answer any **two** of the following questions : 1×2=2

   a) What do you mean by competitive inhibition?

   b) Write one decarboxylation reaction in TCA cycle.

   c) What are conjugated proteins?

   d) Why do C4 plants grow better in hotter and drier climate than C3 counterparts?

2. Answer any **one** of the following questions: 5×1=5

   a) Diagrammatically represent the carbon fixation pathway of C2 cycle indicating that 25% of carbon is lost as compared to C3 fixation. 5

   b) Discuss in short about Allosteric enzymes. What are chaperons? 3+2=5

3. Answer any **one** of the following questions: 8×1=8

   a) Write a brief note on enzyme commission numbers with example. Discuss isoenzymes. 4+4=8

   b) Write down the three irreversible steps of glycolysis. How these steps are reversed in gluconeogenesis? 3+5=8

GROUP-B

(Molecular Biology of Plants)

4. Answer any **two** of the following questions : 1×2=2

   a) Define shuttle vector.

   b) What are REN's?

   c) Write the significance of multiple cloning sites.

   d) What is the function of promoter sequence?

5. Answer any **one** of the following questions: $5\times1=5$

a) Discuss the ideal characters of a host used in recombinant DNA technology. What is phagemid? $4+1=5$

b) Write down different enzymes and their respective functions used in recombinant DNA technology. 5

6. Answer any **one** of the following questions: $8\times1=8$

a) Diagrammatically discuss in detail how a gene of interest is transferred to a host cell. What is pBR322? $6+2=8$

b) Write short notes on the following: $4\times2=8$

i) Flavr Savr Tomato

ii) Hybridization

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