This question paper contains **2** printed pages]

# GA—10—2023

## FACULTY OF SCIENCE AND TECHNOLOGY

## B.Sc. (Third Year) (Sixth Semester) EXAMINATION

## APRIL/MAY, 2023

## (Old CBCS Pattern)

BOTANY

Paper XIV

(Plant Metabolism, Biochemistry and Biotechnology)

**(Monday, 24-4-2023)** **Time : 10.00 a.m. to 12.00 noon**

*Time—Two Hours* *Maximum Marks*—40

*N.B.* :— (*i*) Attempt *All* questions.

(*ii*) *All* questions carry equal marks.

(*iii*) Draw neat and well labelled diagrams wherever necessary.

1. Define $N_2$-fixation. Describe symbiotic nitrogen fixation. 15

*Or*

Describe in brief :

(*i*) Hatch and slack pathway. 8

(*ii*) ETS. 7

2. Give an account on Agrobacterium mediated gene transfer. 15

*Or*

Describe in brief :

(*i*) Techniques in tissue culture. 8

(*ii*) Anther culture. 7

P.T.O.

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3. Write short notes on (any *two*) : 10

(*i*) Lactic acid fermentation

(*ii*) De-nitrification

(*iii*) Protoplast culture

(*iv*) Cloning vectors.



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