

B.Sc. 6th Semester (Honours) Examination, 2023 (CBCS)**Subject : Botany****Course : CC-XIV****(Plant Biotechnology)****Time: 2 Hours****Full Marks: 40***The figures in the margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer *any five* questions from the following: 2×5=10
 - (a) What do you mean by clonal propagation? How does it differ from somaclonal variation?
 - (b) Define cybridisation with suitable example.
 - (c) Name two restriction endonucleases and their source bacteria.
 - (d) What are secondary metabolites? Give two examples.
 - (e) Mention the merits of cryopreservation.
 - (f) Mention the role of auxin and cytokinin in tissue culture.
 - (g) Comment on Luciferase and Luciferin.
 - (h) Define plasmolyticum with an example.

2. Answer *any two* questions from the following: 5×2=10
 - (a) Write a brief note on the nomenclature of restriction enzymes. Define Isoschizomers. 3+2
 - (b) Give an outline of method for the production of virus free plants using meristem as explant.
 - (c) Draw and point out the salient features of plasmid.
 - (d) What is GUS? How does it function?

3. Answer *any two* questions from the following: 10×2=20
 - (a) What is golden rice? Describe the steps of golden rice production through genetic engineering. Mention two controversies. 2+6+2
 - (b) What is restriction mapping? Give a general account on linear and circular restriction mapping with suitable sketch. 2+(4+4)
 - (c) What is cryoprotectant? Briefly outline the method of cryopreservation. Mention two risks associated with cryopreservation. 2+6+2
 - (d) Write short notes on: 5+5
 - (i) GFP and its applications in biotechnology
 - (ii) Write the features of λ (Lambda) vector