



'সমানো মন্ত্র: সমিতি: সমানী'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 6th Semester Examination, 2022

CC14-BOTANY

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

GROUP-A

1. Answer any **five** questions from the following: 1×5 = 5
- (a) What is explant?
 - (b) What is meant by haploid protoplast?
 - (c) What is meant by totipotency of a cell?
 - (d) What is Ti plasmid and where is it found?
 - (e) Give the origin and recognition sequence of a frequent cutter.
 - (f) What is shuttle vector?
 - (g) What is multiple cloning site?
 - (h) What is the significance of DNA ligase in recombinant DNA technology?

GROUP-B

2. Answer any **three** questions from the following: 5×3 = 15
- (a) What is micropropagation? Discuss in detail the various steps of micropropagation. 1+4 = 5
 - (b) Distinguish between: 2½+2½=5
 - (i) Organogenesis and embryogenesis
 - (ii) Selectable markers and reporter genes.
 - (c) Name and describe one each of prokaryotic and eukaryotic vector. 2½+2½=5
 - (d) Describe the method of construction of cDNA library. 5
 - (e) What are restriction endonucleases? Give an account of classification of restriction endonucleases. 1+4 = 5

GROUP-C

3. Answer any *two* questions from the following: 10×2 = 20
- (a) Describe the generation of a transgenic plant by means of an *Agrobacterium* transformation system with suitable diagram. 10
- (b) Define PCR. Discuss in detail the steps involved in a PCR reaction with suitable diagram. 2+8 = 10
- (c) What is protoplast culture? What is the main objective of protoplast culture? Describe the available methods for isolation and purification of protoplast. 2+2+6=10
- (d) Write short notes on: 5+5 = 10
- (i) Golden rice
- (ii) Edible vaccines.

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