WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 6th Semester Examination, 2023

BOTACOR14T-BOTANY (CC14)

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 the following questions in brief: 1×6 = 6

(a) What is totipotency?

(b) Which chemical enhances vir gene expression?

(c) Which enzymes are known as 'molecular scissors'?

(d) Name the pair of hormones required for a callus to differentiate.

(e) What is the role of osmoticum during isolation of protoplast?

(f) What do you mean by vector less gene transfer?

2. Answer any ***eight*** questions from the following: 3×8 = 24

(a) Briefly discuss the functional role of different types of plant growth regulators used in tissue culture.

(b) What is somatic hybrid? Briefly discuss the role of somatic hybrid in plant tissue culture. 1+2

(c) Differentiate between blunt end cuts and staggered end cuts by restriction endonuclease with examples.

(d) How cloning vectors differ from expression vectors? Give one example of each.

(e) Write a brief note on pBR322 vector.

(f) Give a brief account of the commonly used physical gene delivery methods in plants.

(g) What is the colony hybridization method of screening in recombinant DNA technology?

(h) Briefly describe the protocol of construction of c-DNA libraries.

(i) Mention the importance of marker gene in plant transformation technique. What do you mean by 'reporter gene'? 2+1

(j) What is haploid culture? Write the uses of haploid culture. 1+2

(k) Describe the role of transgenics in bioremediation.

(l) Write short note on genetically engineered pharmaceutical products.

3. Answer any *two* from the following: $5\times2 = 10$

(a) Briefly describe the different stages of micropropagation. State the limitations of micropropagation technique. 4+1

(b) Enlist the advantages and disadvantages of genetically modified crops.

(c) What is transgenic plant? Describe the process of development of Bt cotton. 1+4

(d) Differentiate between: $2\frac{1}{2}+2\frac{1}{2}$

(i) Somatic and zygotic embryogenesis

(ii) YAC and BAC vector.

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