(e) Differentiate between genomic DNA and cDNA libraries. Discuss about the construction of genomic library.

(f) Discuss eleborately various steps involved in plant tissue culture.

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3 (Sem-6/CBCS) BOT HC 2

2024

BOTANY

(Honours Core)

Paper : BOT-HC-6026

(Plant Biotechnology)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Fill in the blanks : 1×7=7

(a) _____ discovered totipotency.

(b) A single strand of nucleic acid tagged with a radioactive molecule is called a _____.

(c) The element _____ provides a very stable ultra-low temperature environment.

(d) _____ is a type of hybrid that contains a lambda phage cos sequence.

(e) A _____ is a collection of DNA fragments that have been cloned into vectors.

(f) The basic target of _____ is a living cell.

(g) _____ genes are used to track the physical location of a segment of DNA.

2. Answer the following questions very briefly : 2×4=8

(a) What are cloning vectors ?

(b) What is the principle of totipotency ?

(c) What are the applications of somatic embryogenesis in plant tissue culture ?

(d) Mention the types and uses of microinjection.

3. Answer ***any three*** of the following : 5×3=15

(a) What do you mean by colony hybridization ? Mention its practical applications.

(b) Write a note on industrial enzymes.

(c) Where is linear DNA found ? What are the advantages of linear DNA over circular DNA ?

(d) What is the difference between androgenesis and gynogenesis ? What do you mean by direct androgenesis ?

(e) Write a note on Ti plasmid.

4. Answer ***any three*** of the following : 10×3=30

(a) Write about various types of reporter genes with their applications.

(b) What do you mean by primary and secondary metabolites ? How can biotechnological approaches enhance the production of secondary metabolites ?

(c) Give an account on transgenic crops with improved quality traits.

(d) What are restriction enzymes ? Mention the specific properties of various types of restriction enzymes, alongwith their importance for recombinant DNA technology.