2015

BIOTECHNOLOGY

Paper : 301

PLANT BIOTECHNOLOGY

Full Marks : 80

Time : 3 hours

The figures in the margin indicate full marks for the questions

Q1. Answer the following questions: 1×10=10

a. What does RAPD and SCAR stand for?

b. What is organogenesis?

c. What is abiotic stress?

d. What is a synkaryon?

e. What is an explant?

f. Define homokaryons.

g. What is a callus?

h. Ri-plasmid: Agrobacterium ____?_____

i. Define male sterility in plants.

j. Name two methods for obtaining virus free plants.

Q2. Differentiate the following: 2×5=10

a. Ri and Ti plasmid

b. Primary and secondary metabolites

c. Callus culture and suspension culture

d. Symmetric and asymmetric hybrids

e. Spontaneous protoplast fusion and induced protoplast fusion

Q3. Write short notes on any four of the following: 5×4=20

a. Herbicide resistance

b. Edible vaccines

c. Plant tissue culture media

d. RFLP

e. Oleosin partitioning technology

Q4. Answer any two of the following questions: 8×2=16

a. What are the tissues /parts of a plant that can be used to derive haploid plants? Describe any two of the tissue culture techniques employed to obtain haploid plants. 2+3+3=8

b. Describe the techniques used in vector less or direct DNA transfer in plants. 8

c. What is male sterility in plants? Differentiate between nuclear male sterility and cytoplasmic male sterility.

Explain the Barnase-Barstar system used in hybrid seed production. 1+2+5=8

Q5. Answer any two of the following questions: 12×2=24

a. What are single cell clones? Mention their significance. Describe four techniques used to culture single cells. 2+2+8=12

b. What is Micropropagation? What are its stages? Describe each of the stages of micropropagation. 2+2+8=12

c. Draw a neat and labelled diagram of a Ti plasmid. Describe the mechanism of DNA transfer with the help of a Ti plasmid. 4+8=12

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