Exam.Code:0005
Sub. Code: 0474

1128

B.A./B.Sc. (General) Fifth Semester

Biotechnology

BIOT-Elect-Sem—V-T: Plant and Animal Biotechnology

Time allowed: 3 Hours **Max. Marks: 67**

***NOTE**: Attempt five questions in all, including Question No. IX (Unit-V) which is compulsory and selecting one question from each Unit.*

x-x-x

UNIT – I

I. a) Describe androgenesis in detail and state its applications.

b) Discuss how a plant tissue culture room is organized. (2x6½)
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II. a) Discuss the various methods used for .isolation and fusion of protoplasts.

b) Differentiate between somatic embryogenesis and organogenesis. (2x6½)

UNIT – II

III. a) What are the direct and indirect methods of transformation of plants?

b) Explain the role of various vir genes involved in T-DNA transfer. (2x6½)

IV. a) Explain how *Agrobacterium* causes crown gall disease in plants.

b) Explain with the help of an example how plants can be genetically modified to develop herbicide resistance/pest resistance. (2x6½)

UNIT – III

V. a) What are the various sources of contamination in animal culture and what are their remedies? (2x6½)

b) What is a cell line? Differentiate between normal and transformed cells. (2x6½)

VI. a) Describe the important components of animal cell culture medium.

b) How are monolayer cultures different from suspension cultures? (2x6½)

UNIT – IV

VII. a) How can one scale up the animal cell cultures? Give examples.

b) What are stem cells? What are the applications of stem cells in medicine? (2x6½)

P.T.O.

VIII. a) What is the procedure of cloning and what are its applications?

b) Differentiate between embryonic and adult stem cells. What are the functions of stem cells? (2x6½)

UNIT – V

IX. Write short notes on the following:-

a) Gene bank.

b) Serum-free media

c) Asymmetric hybrids

d) Totipotency

e) Explants

f) Haploids

g) Microinjection

h) Binary vector

i) Somaconal variation

j) Name three cryoprotectants (10x1½)

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