Exam.Code:0437
Sub. Code: 3481

2022

M. Sc. (Biotechnology) Third Semester

MBIO-303: Plant Biotechnology

Time allowed: 3 Hours Max. Marks: 80

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Unit.*

x-x-x

1. **Write brief notes on the following:-**

i) Embryo Rescue
ii) DNA Banks
iii) Transformation in monocots
iv) Plants as Bioreactors

(4X4 =16)

UNIT-I

.2. a) What is cryopreservation? Discuss the various steps of cryopreservation process.
b) Discuss various components of Plant Tissue Culture medium.
(8 each)

.3. **Give a brief account of the following:**
a) Production of haploid plants
b) Protoplast isolation techniques
c) Initiation and maintenance of callus cultures
d) Pruction of virus-free plants **(4 each)**

UNIT-II

,4 a) Discuss the mechanism of *Agrobacterium* mediated gene transfer.
b) Describe the various direct DNA transfer in plants.
(8 each)

.5 **Give a brief account of the following:**
a) Gene silencing
b) Bar and Barnase systems

P.T.O.

c) Applications of viral vectors
d) Reporter genes and their examples

(4 each)

UNIT-III

.6 a) Explain the various chloroplast transformation methods giving their advantages and limitations.

b)Describe the various strategies for producing plant secondary metabolites in vitro.

(8 each)

.7 **Give a brief account of the following:**
a) Biodegradable plastics
b) Oleosin partitioning technology
c) Edible vaccines
d) Biotransformation (giving suitable examples)

(4 each)

UNIT-IV

.8 a) Discuss the molecular marker assisted selection in plant breeding giving suitable examples.
b) Under what conditions can plants be grown in a Green house ? Discuss the advantages and limitations of growing plants in a Green house ?

(8 each)

.9 **Give a brief account of the following:**
a) RAPD markers
b) SCAR
c) QTLs
d) RFLP maps **(4 each)**

x-x-x