



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY

THIRD SEMESTER – NOVEMBER 2015

BT 3823 - PLANT BIOTECHNOLOGY

Date : 05/11/2015
Time : 09:00-12:00

Dept. No.

Max. : 100 Marks

PART – A

Answer all the questions

(20 Marks)

I. Choose the correct answer

(5 x 1 = 5)

- The production of secondary metabolites require
a) Protoplast b) Cell suspension c) Meristem d) Axillary bud
- Carbon compound produced by crown galls and hairy roots
a) Fullerene b) Acetylserine c) Opine d) Acetosyringone
- Hormone pair required for a callus to differentiate
a) auxin and cytokinin b) auxin and ethylene
c) auxin and abscissic acid d) cytokinin and gibberellin
- Biolistic technique is used in
a) Tissue culture b) Gene transfer c) Hybridization d) Germplasm conservation
- Agar-Agar is obtained from
a) Gelidium b) Fucus c) Laminaria d) Polysiphonia

II. State whether the following are true or false, if false give reason

(5 x 1= 5 marks)

- Father of plant tissue culture is Gautheret.
- Macrocystis pyrifera* are known for their ability to fix atmospheric nitrogen.
- Study of interaction of light with living organisms is photomorphogenesis.
- Most commonly used method for plant transformation is microinjection.
- Red algae are the most primitive form of algae.

III. Complete the following

(5 x 1 = 5)

- Synthetic seed is produced by encapsulating somatic embryo with_____.
- HOAS is _____.
- Hormone which is gaseous in nature_____.
- Two bacteria most useful in plant genetic engineering are _____ and_____.
- Example of a symbiotic fungus is _____.

IV. Answer the following, each within 50 words

(5 x 1 = 5)

- Define Totipotency.
- What is the role of *vir* genes?
- Expand BAP.
- Which molecular testing method is used to confirm the presence of protein in transgenics?
- What are mycorrhizae?

PART – B

Answer the following, each within 500 words.

(5×8 = 40 marks)

Draw diagrams wherever necessary.

21(a) What is a protoplast? Describe the protoplast isolation technique.

OR

(b) Write a brief note on meristem culture.

22(a) Briefly explain how insect resistant plants are produced.

OR

(b) Describe any two strategies used in developing viral resistant plants.

23(a) How does IAA play a role in plant growth and development.

OR

(b) Write short notes on seed storage proteins.

24(a) Discuss the phenomenon of somaclonal variations in plants.

OR

(b) Enumerate the applications of transgenic plants.

25(a) Describe the mass cultivation process of blue green algae in field.

OR

(b) What is VAM? Mention the functions and applications of VAM.

PART – C

Answer any two of the following questions, each within 1500 words.

(2×20 = 40 marks)

Draw diagrams wherever necessary.

26. Elaborate on Artificial seeds and its role in plant tissue culture. Mention its advantages.

27. Describe the role of fungal and bacterial resistant genes in plant disease management.

28. Explain the different methods of gene transfer mechanisms in plants.

29. Write a detailed account on algal biotechnology and the role of algae as biofertilisers.
