



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY

THIRD SEMESTER – NOVEMBER 2016

BT 3823 - PLANT BIOTECHNOLOGY

Date: 03-11-2016
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

PART – A

Answer all the questions

I. Choose the correct answer

(5 x 1 = 5 Marks)

- The Chu (N6) medium was specially used for
a) Protoplast culture b) Meristem culture c) Root culture d) Cell suspension culture
- An autonomous self replicating extra-chromosomal DNA
a) Phage b) Acetosyringone c) Opine d) Plasmid
- Picloram is
a) Auxin b) 2 methoxy-3,6-dichlorobenzoic acid c) Gibberellin d) Cytokinin
- vir* genes are activated by
a) Acetosyringone b) *Agrobacterium* c) T-Pilus d) *Rhizobium*
- Ergot alkaloids are obtained from
a) *Saccharomyces* b) *Sargassum* c) *Claviceps* d) *Polysiphonia*

II. State whether the following are true or false

(5 x 1 = 5 Marks)

- Magnesium is required for the synthesis of cell wall.
- Origin of replication is found in the tDNA region of the plasmid.
- Phytosulfokine is a plant peptide hormone.
- Polyhydroxyl alkonate is a herbicide.
- Agar-agar is produced from *Fucus*.

III. Complete the following

(5 x 1 = 5 Marks)

- _____ is an important source of carbon in plant tissue culture medium.
- Bacillus thuringiensis* is a gram _____ bacteria.
- _____ is a scientist who studied the effect of unilateral light on plant movement.
- Nitrogen-fixing bacteria in leguminous plants are _____.
- The largest marine forms of algae are called as _____.

IV. Answer the following, each within 50 words

(5 x 1 = 5 Marks)

- Distinguish between embryogenesis and organogenesis.
- Mention any two methods by which viral resistance can be induced in transgenics.
- Mention any two natural and synthetic auxin.
- Expand GEAC.
- Which chemical is used to prevent insect breeding in algal ponds?

PART – B

Answer the following, each within 500 words. Draw diagrams wherever necessary. (5 × 8 = 40 Marks)

21. (a) What are synthetic seeds? How are they produced?

OR

(b) Describe the role of mineral elements in plant tissue culture.

22. (a) Discuss the importance of chitinase and glucanase genes in fungal resistance.

OR

(b) Write about any two molecular markers used in plant gene expression.

23. (a) Explain the structure and biosynthesis of gibberellins.

OR

(b) Describe the molecular aspects of seed development.

24. (a) Briefly explain the conventional methods of plant breeding.

OR

(b) Give a short note on the genetic engineering for increasing crop productivity using *nitrogenase* gene.

25. (a) How do algae play an important role in biotechnology?

OR

(b) Discuss briefly on fungal secondary metabolites.

PART – C

Answer any TWO of the following, each within 1500 words. Draw diagrams wherever necessary.

(2 × 20 = 40 Marks)

26. As a biotechnologists, how will you produce disease free plants under *in vitro* culture.

27. Explain the molecular interaction between dicot plant and *Agrobacterium*.

28. Give an account on different types of plant hormones found in plants.

29. Describe the mushroom cultivation method adding a note on its advantages and disadvantages.
