LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – BIO TECHNOLOGY

THIRD SEMESTER – NOVEMBER 2009

BT 3817 - PLANT MOLECULAR BIOLOGY

Date & Time: 05/11/2009 / 9:00 - 12:00 Dept. No. | | Max. : 100 Marks

PART – A
ANSWER ALL THE QUESTIONS

1. Choose the correct answer: 5 x 1 = 5 marks

1) What is the contribution of Barbara McClintok?
a) DNA sequencing b) PCR c) Jumping genes d) Transcription

2) Which is a seed storage protein?
a) Kinetin b) Napin c) Sytemin d) Cytokinin

3) Which enzyme is involved in nitrogen fixation?
a) Nitrogenase b) GS c) Nitrate reductase d) GOGAT

4) Bacterial wilt of potato is transmitted by
a) Nematode b) Soil c) Air d) Seed

5)Which one of the following is an ectomycorrhizae?
a) *Glomus* sp b) *Gigaspora* sp c) *Scutellospora* sp d) *Pisolithus* sp.

II. State True or False, if false give reason 5 x 1 = 5 marks

6) Promoters are found in the upstream of a gene
7) Ethylene is called as the fruit ripening hormone
8) *Agrobacterium* is a gram positive bacteria
9) Powdery mildew of wheat is caused by *Ustilago tritici*
10) Common medium used for BGA cultivation is MS.

III. Complete the following: 5 x 1 = 5 marks

11) Pectinase degrades _____ of a cell
12) _____ is a seed storage protein in soybean
13) *Nod* factors are required for _____ _____
14) Bacterial blight of rice is caused by _____ _____
15) Phosphate solubilizers secrets _____ in soil.

IV. Answer the following within 50 words only 5 x 1 = 5 marks

16) Mention the name of scientists who pioneered anther culture
17) Define auxin and cite two examples
18) Why *Agrobacterium* is called as the natural genetic engineer?
19) "Bt" gene for the production of disease resistant plant is is obtained from which organism?
20) Comment on the sources of agar agar and alginates.

PART - B

V. Answer any five questions within 350 words only, draw diagrams wherever required **5 x 8 = 40 marks**

21) Distinguish between i) dedifferentiation and redifferentiation
ii) organogenesis and embryogenesis iii) anther and ovule culture
22) Give an account on various plant growth hormones
23) What are the various types of seed storage proteins and explain it?
24) Explain briefly somaclonal variations with examples
25) Why plants can be used as bioreactors?
26) Discuss one molecular approach with diagram in tackling plant pests
27) Briefly explain about fungal secondary metabolites.
28) How are BGA mass produced and marketed?

PART - C

VI Answer the following, each within 1500 words only **2x 20 = 20 marks**

29) a) Explain the following
i) Genome organization in plants (**6 marks)**
ii) Cytoplasmic male sterility (**6 marks)**
iii) Production of secondary metabolites (**8 marks)**

OR

b) Describe the molecular biology of crown galls - *Agrobacterium* with diagram **(15 + 5 marks)**

30) a) Describe the following
i) Give an account on photomorphogenetic effects (**4 marks)**
ii) Two major diseases of rice, wheat, barley and oats – name of the pathogen and mode of transmission (**8 marks**)
iii) Micropropagation by organogenesis and embryogenesis (**8 marks)**

OR

b) Discuss the following
i) Biodegradable plastics **(6 marks)**
ii) Phytoheamagglutinins **(6 marks)**
iii) Cultivation of *Pleurotus* spp. **(8 marks)**

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