



Name :

Roll No. :

Invigilator's Signature :

CS/M.Tech (BT)/INT.Ph.D/Mol.Bio./SEM-3/MBT-304/PHMB-301/2011-12

2011

PLANT BIOTECHNOLOGY

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Objective Type Questions)

1. Answer any *ten* of the following questions : 10 × 1 = 10

A) Answer the following :

- i) What is the differences between Somatic and Zygotic embryo ?
- ii) What is the role of PVPA and which organization implemented PVPA ?
- iii) Define Biofuel and name one 1st and one 4th generation Biofuel.
- iv) What is disease triangle ?
- v) What is Rhicadhesin and how does it differ from vitronectin ?
- vi) Name one major plant hormone which is associated with fruit ripening. Which receptor protein does recognize this hormone ?



- vii) What is the difference between LEA and CaMV35s promoters ?
 - viii) Name the basic components of tissue culture medium.
 - ix) What is viroids ? Name the most destructive one and its respective host.
 - x) What is Tg and how is it related to Cryopreservation ?
 - xi) Name different types of Gene Bank and different types of Germplasm conservation procedures.
 - xii) What is edible vaccine ? Name the different procedures of vaccinations.
- B) Choose correct alternatives for the following :
- xiii) In which of the following seed dispersal mechanisms, ant plays an important role and how ?
 - a) Zoochory
 - b) Amenochory
 - c) Myrmecochory.
 - xiv) Which of the following techniques are used to detect Gene Expression at *mRNA* and protein level ?
 - a) Southern Blot
 - b) Western Blot
 - c) RAPD
 - d) RNAase protection Assay.
 - xv) Name the specific function of the following enzymes.
 - a) Polygalacturonase
 - b) Expansin
 - c) Importin
 - d) B-cyclase.



GROUP – B

(Short Answer Type Questions)

Write short notes on any *five* of the following.

5 × 4 = 20

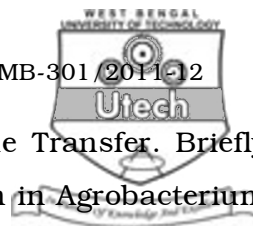
2. Exogenous and Endogeneous Elicitors.
3. Guard Hypothesis and Pro-Protein.
4. Advantages and disadvantages of using edible vaccine.
5. Agropine and nopaline.
6. Constitutive and inducible promoters
7. Scarification and stratification.
8. Expansin and Definsin.
9. Match the pairs :
 - i) Vitrification matches with Germplasm conservation/cryoprotection
 - ii) Innate Immune system matches with SAR/SIR
 - iii) DRE matches with GA/ABA
 - iv) Calciclone matches with Tissue culture/Plant disease resistance.

GROUP – C

(Long Answer Type Questions)

Answer any *four* of the following. 4 × 10 = 40

10. Briefly explain the difference between Cell Suspension Culture and Protoplast Culture. What is Polyploidy and how can it be induced artificially ? Differentiate Androgenesis from Gynogenesis and briefly describe the method of producing Haploid plant. 4 + 2 + 4



11. Name the different methods of Direct gene Transfer. Briefly describe the role of chvE and viraA protein in *Agrobacterium* and Plant-cell recognition process. Schematically describe the process of T-strand formation, its transport and integration into the host genome. 2 + 3 + 5

12. What is the role of FAO ? Differentiate between V-GURT and T-GURT. Diagrammatically describe how Terminator Gene Technology is used in pure line seed production. 2 + 4 + 4

13. What is Co-Dominant Marker and how is it related to locus of two different plant cultivars ? Describe a method by which Co-Dominant marker can be identified. What is Artificial seed and how can it be developed ? 3 + 4 + 3

14. Describe different methods of producing Long Life Tomato. What are the major physiological and biochemical changes occur during Fruit maturation to ripening stages ? Describe the role of different MADS-Box genes during fruit ripening. 3 + 4 + 3

15. What is the difference between Jasmonic acid and Salicylic acid ? Which one is related to ISR and how ? Diagrammatically represent different pathways of plant resistance mechanisms against pathogen attack. 2 + 3 + 5

