



KERALA AGRICULTURAL UNIVERSITY
B. Sc. (Hons.) Ag . 2016 Admission
IV Semester Final Examination-July-2018

ot.2201

Fundamentals of Plant Biotechnology (2+1)

Marks: 50
Time: 2 hours
(10x1=10)

I Fill in the blanks:

- 1 The Indian born American scientist who cracked 'genetic code' for various amino acids is.....
- 2 In eukaryotes, pre-mRNA is converted into a mature-mRNA after the splicing of.....
- 3 Zeatin is an example of the class of hormones called.....
- 4 Upon agro-infection,..... portion of the Ti plasmid is transferred into the cells of the infected host.
- 5 One of the three "International Nucleotide (DNA) Sequence Databases" is.....

Match the following

- | A | B |
|-----------------------|-----------------|
| 6 Tissue culture | a Paul Berg |
| 7 DNA polymerase | b Kary Mullis |
| 8 Genetic Engineering | c Haberlandt |
| 9 DNA fingerprinting | d Kornberg |
| 10 Thermal Cycler | e Alec Jeffreys |

II Write Short notes on ANY FIVE of the following

(5x2=10)

- 1 List the different levels of structural organization of a 'protein'.
- 2 Differentiate: Totipotency and Pluripotency
- 3 Define 'cloning vector'? Write the different 'essential' sequences of a cloning vector along with their use.
- 4 DNA markers based on the 'mode of generation' of markers with one example for each.
- 5 What is a 'BLAST' search? Write its utility.
- 6 State the significance of auxin- cytokinin ratio in tissue culture
- 7 What are DNA modifying enzymes? List the different classes with one example for each.

III Answer ANY FIVE of the following

(5x4=20)

- 1 What are nutrients? Describe briefly the nutrient requirements for plant tissue culture.
- 2 Write about *in vitro* germplasm conservation.
- 3 What is an enzyme? Explain the different classes of 'DNA modifying' enzymes with examples.
- 4 What is a 'synthetic seed'? Explain its synthesis and application.
- 5 What is a DNA marker? List the different steps and their requirements for developing AFLP markers.
- 6 List any four applications of 'Nano-Biotechnology'.
- 7 What is a database? Briefly explain the utilities of the NCBI database.

IV Write an essay on ANY ONE of the following

(1x10=10)

- 1 Describe in detail the events occurring during 'Transcription' in prokaryotes.
- 2 Describe 'agrobacterium mediated transformation' with proper diagrams.
