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Ph. D. Course Work

EXAMINATION, Dec. 2018

(BT)

BT903

ADVANCES IN PLANT BIOTECHNOLOGY

Time : 3 *Hours*] [*Maximum Marks :* 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all. All questions carry equal marks.

1. Describe various types of plant tissue cultures. What are the advantages of *in vitro* cultures over traditional plant breeding methods; explain with practical examples.

2. (a) Discuss the role of vir genes in *Agrobacterium* mediated genetic transformation.

(b) Explain any one method for direct gene transfer in plants. **10×2=20**

3. How medicinal plants have revolutionized the pharmaceutical industry ? Which salient features and properties attributes to medicinal plants for their increasing demand ? **20**

4. Discuss the various applications of molecular markers in improvement of crops. Which plants have been completely sequenced ? **20**

5. The frequency of genetic information obtained from genetic markers have significant impact on Evolutionary Biology. Justify the statement with examples. **20**

6. Plant genomes present more complexities than other eukaryotes because of their non-motile nature and absence of neuronal network. Give descriptive write up for regulation of gene expression in this context. **20**

7. Write brief notes on the following :

(a) Microarray **7**

(b) GMPs **7**

(c) Antisense RNA technology. **6**

8. (a) Describe Post-transcriptional gene silencing in plants and its mechanisms.

(b) How plants metabolic pathways have been engineered for crop improvement ? **10×2=20**