

Total number of printed pages-3

3 (Sem-6) BOT M2

2020

BOTANY

(Major)

Paper : 6·2

**(Bioinformatics, Computer Application and
Biotechnology)**

Full Marks : 60

Time : Three hours

**The figures in the margin indicate
full marks for the questions.**

1. Fill In the blanks : $1 \times 7 = 7$

(a) _____ program is used for searching nucleotide databases using a nucleotide query.

(b) Cartagena Protocol is related to _____.

(c) Class _____ restriction enzymes are used for cloning purposes.

Contd.

- (d) Roundup soybean is tolerant to _____.
- (e) PubMed is a _____ database.
- (f) RNA is starting material for _____ library construction.
- (g) During Agrobacterium mediated gene transfer, virulence gene _____ product senses the presence of phenolic compounds released by wounded plant tissue.
2. Define the following : 2×4=8
- (a) Probes and primers
- (b) Binary vectors
- (c) Restriction enzyme
- (d) Micropropagation.
3. Write on **any three** of the following : 5×3=15
- (a) Genetic features of Ti plasmid
- (b) Cloning and expression vectors
- (c) Plant functional genomics in crop improvement
- (d) Maxam-Gilbert-- method of DNA sequencing
- (e) DNA library.

4. Answer **any three** of the following :

10×3=30

- (a) Discuss the scope and importance of Biotechnology and Bioinformatics in present context of Biological research. What further development do you foresee in the area of Biotechnology and Bioinformatics in India? 6+4=10
- (b) Define transgenic plants. Discuss the advantages and disadvantages of genetically modified crops. 2+8=10
- (c) Explain different methods available for production of haploid plants. Discuss the use of haploids in plant breeding. 5+5=10
- (d) What is DNA fingerprinting? Describe the procedure of DNA fingerprinting. Mention some important uses of DNA fingerprinting technology. 2+5+3=10
- (e) Define operating system. Discuss the advantages/disadvantages of using Windows and Linux operating system. 2+8=10
- (f) With the help of appropriate diagram, explain the molecular mechanisms associated with Agrobacterium mediated genetic transformation. 10
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