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3 (Sem 6) BOT M 2

2015

**BOTANY**

**(Major)**

Theory Paper : M-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. Answer the following questions :  $1 \times 7 = 7$
- (a) What is the name of the set of software programmes that control the organization, storage, management and retrieval of data in a database ?
  - (b) Name the scientist who first initiated the sequencing of cDNA molecules using mRNA.
  - (c) Write the full form of the acronym 'BLAST'.

[Turn over

- (d) Write two important basic elements of a power point slide.
- (e) Name the supplement which is used in a plant tissue culture media to oxidize phenolic compounds produced during culture and thereby reducing toxicity.
- (f) A very fine needle and glass micropipette for introducing DNA into cells or protoplasts is called \_\_\_\_\_. (fill in the blank)
- (g) Enzyme that recognize specific sequences of nucleotides in a DNA molecule and clean the molecule at particular point is called \_\_\_\_\_. (fill in the blank)

2. Briefly describe the following terms :  $2 \times 4 = 8$

- (a) Genomics
- (b) Search engines
- (c) Exons
- (d) Primer.

3. Answer any *three* of the following questions :

$5 \times 3 = 15$

- (a) In your opinion what role genetic engineering could play for food security in India ?

- (b) What is the importance of bioinformatics in life sciences ?
- (c) Discuss the importance of molecular phylogeny.
- (d) Discuss the importance of haploid plants.
- (e) Describe the steps for development of transgenic plants.

4. Answer the following questions :

- (a) What is proteomics ? Write a brief account on the various techniques used for the study of proteins in proteomic.  $2+8=10$

Or

What do you understand by data management and data retrieval ? Describe the various tools used for data retrieval.  $3+7=10$

- (b) Write short notes on the following :  $5 \times 2 = 10$

- (i) MS Office
- (ii) Internet.

Or

- (i) DNA fingerprinting
- (ii) Role of genetic engineering in crop improvement.

- (c) What is embryo culture ? Describe the procedure of embryo culture. Discuss the areas where it can be applied.  $2+5+3=10$

Or

Write short notes on :  $5+5=10$

- (i) Tools for joining of DNA molecules  
(ii) Vectors.