

2014

BOTANY

( Major )

Paper : 6.2

**( Bioinformatics Computer Application and  
Biostatistics )**

Full Marks : 60

Time : 3 hours

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

1. Write the correct answer : 1×7=7

(a) The term 'Bioinformatics' was coined by

(i) Paulien Hogeweg and Ben Hesper

(ii) D. J. Lipman

(iii) Ben Hesper

(iv) Hesper and Waston

(b) cDNA is defined as

(i) DNA obtained from chloroplast

(ii) prepared by using mRNA as  
template and reverse transcriptase

(iii) genomic DNA of bacteria

(iv) mitochondrial DNA

- (c) Which one of the following does not represent a database?
- (i) SWISS-PROT
  - (ii) OMIM
  - (iii) Genome Gateway
  - (iv) IUPAC
- (d) Which one of the following scientists discovered that root and shoot formation in culture depends upon auxin-cytokinin ratio?
- (i) Skoog and Miller
  - (ii) Chilton and Noguchi
  - (iii) Nitsch and Skoog
  - (iv) Lynch and Benson
- (e) Gradual exposure of plantlets for acclimatization to environmental conditions is called as
- (i) regeneration
  - (ii) hardening
  - (iii) adaptation
  - (iv) allotransplantation



( 3 )

(f) The formation of sporophyte from the male gametophyte on artificial medium is called as

- (i) embryogenesis
- (ii) androgenesis
- (iii) haploitization
- (iv) diploitization

(g) A mass of unorganized parenchyma cells derived from explants is

- (i) callus
- (ii) embryo
- (iii) somatic cells
- (iv) hybridoma

2. Write brief descriptions on the following :

2×4=8

- (a) Biological database
- (b) Computer programmes
- (c) Proteomics
- (d) Totipotency

3. Write on/Answer any *three* of the following :

5×3=15

- (a) Genetic engineering and pharmaceutical industry
- (b) Role of transgenics in present-day world
- (c) Describe about search engines.

- (d) Write a short note on data presentation.
- (e) Describe the sterilization techniques used during tissue culture.

4. Answer the following questions : 10×3=30

- (a) What is bioinformatics? Give an account on classification, properties and importance of database.

*Or*

What is drug designing? Describe the various approaches of drug designing.

- (b) What is micropropagation? Discuss the steps, advantages and disadvantages of micropropagation.

*Or*

Define somaclonal variation. What are the causes of somaclonal variation? Describe the method of pollen culture.

- (c) Write short notes on :
  - (i) Construction of DNA libraries
  - (ii) DNA sequencing

*Or*

- (i) Operating systems
- (ii) Search engines and searching of biological database

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