

**B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, MARCH 2015****Sixth Semester**

Core Course—BIOTECHNOLOGY AND BIOINFORMATICS

(Common for B.Sc. Botany Model – I and Model – II)

Time : Three Hours

Maximum Weight : 25

**Part A (Objective Type)***Answer all questions.**Each bunch of four questions carries a weight of 1.*

- I. 1 Virus free plant can be produced from :
- (a) Anther culture. (b) Pollen culture.  
(c) Meristem culture. (d) Ovule culture.
- 2 In microarray fragments of DNA are placed on a :
- (a) Microscope slide. (b) Circuit board.  
(c) Silicone chip. (d) Membrane.
- 3 Which is a primary database ?
- (a) Genbank. (b) TrEMBL.  
(c) NCBI. (d) PROSITE.
- 4 Cladogram represents :
- (a) Arbitrary branch length. (b) Scaled branch length.  
(c) Number. (d) Common ancestry.
- II. Name the following :—
- 5 A private company established culture lab for cloning cardamom plant in India.  
6 Key enzyme in PCR.  
7 A pairwise sequence alignment tool.  
8 Undifferentiated mass of dividing cells.
- III. Fill in the blanks :
- 9 \_\_\_\_\_ is the optimum pH range suitable for culturing a plant tissue.  
10 \_\_\_\_\_ is an enzyme used for degrading cellulose in cell wall during protoplast isolation.  
11 CADD stands for \_\_\_\_\_.  
12 \_\_\_\_\_ is an excised piece of tissue used in micropropagation.

**Turn over**

## IV. State True or False :

- 13 Southern blotting is employed in the detection of DNA.
- 14 Batch culture is a method of suspension culture.
- 15 Casein hydrolysate can stimulate somatic embryogenesis.
- 16 EMBL is a protein sequence database.

(4 × 1 = 4)

**Part B (Short Answer Questions)**

*Answer any five of the following.  
Each question carries a weight of 1.*

- 17 What is IPR ?
- 18 What is surface sterilization ?
- 19 What is t-DNA ?
- 20 Define hardening.
- 21 What is cell immobilization ?
- 22 What is molecular docking ?
- 23 What is a superbug ?
- 24 What is SWISSPROT ?

(5 × 1 = 5)

**Part C (Short Essay/Problem Solving Type)**

*Answer any four of the following.  
Each question carries a weight of 2.*

- 25 Write a short note on somatic embryogenesis.
- 26 Explain scope and significance of embryonic stem cell culture.
- 27 What are cloning vectors ? Explain the structure of PBR<sup>322</sup>.
- 28 What are cybrids ? How are they produced ?
- 29 Briefly explain protein structure prediction and homology modelling.
- 30 Write a short note on molecular visualization with special reference to Rasmol.

(4 × 2 = 8)

**Part D (Essay Type)**

*Answer any two of the following.  
Each question carries a weight of 4.*

- 31 Explain composition and preparation of MS medium.
- 32 Give an account of application of biotechnology in agriculture.
- 33 Give an account of genomics.

(2 × 4 = 8)