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PF-003-001611 Seat No. _____

B. Sc. (Sem. VI) (CBCS) Examination

July - 2018

Botany : B-601

(Genetics, Molecular Biology, Biotechnology, Bioinformatics & Anatomy)

(New Course)

Faculty Code : 003

Subject Code : 001611

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions : (1) This question paper contains three questions. All questions are compulsory.

(2) Write answers of all the questions in main answer sheet.

(3) Draw neat and labelled diagram wherever necessary.

(4) Figures to the right side indicated full marks of the questions.

1 Objective type questions : **20**

(1) The length of different internodes in a culm of sugarcane is variable because of _____ tissue present.

(2) ECORI is the example of

(3) Define : Bioinformatics.

(4) Restriction endonucleases are enzymes which restrict the action of enzyme _____ Polymerase.

(5) Transgenic plant can be used as bioreactor. Is this true statement ?

(6) Which vector is used as a best genetic vector in plants?

(7) Write the full form of ExPAsy :

(8) The main technique involved in agricultural biotechnology is called.

(9) What is the full form of NCBI ?

(10) The use of colchicine is involved in production of _____

(11) Extra nuclear inheritance (Cytoplasmic inheritance) is a consequence of presence of genes in _____ of cell organs.

(12) In tissue culture roots can be induced by lower concentration of cytokinins and _____

(13) Lal Bahadur Shastri biotechnology centre is situated at _____

(14) Husk of coconut is made up of :

(15) What are the constituents of phloem ?

(16) Give the full form of BLAST

(17) Which tissue is known as living mechanical tissue?

(18) Growth rings are formed due to activity of _____ and _____ Cambium.

(19) Which of the following statements does not hold true for restriction enzyme?

(1) It recognises a palindromic nucleotide sequence

(2) It is an endonuclease.

(3) It is isolated from viruses.

(20) DNA sequences that code for protein are known as _____

2 (A) Answer in short : (Any **Three**) **6**

(1) Write the applications of tissue culture.

(2) State the location and function of casperian strips.

(3) Discuss extraction of enzymes in short.

(4) Write a note on : Sclerides.

(5) Write a short note : Mass selection in plants.

(6) Write the function of Parenchyma tissue (Any four).

(B) Give the Answer : (Any **Three**) **9**

(1) Discuss cytoplasmic inheritance in yeast.

(2) Describe the internal structure of a monocotyledonous stem.

(3) Describe the media preparation of tissue culture.

(4) Explain : Basic concept of bioinformatics.

(5) Draw the labelled diagram of salvadora stem.

(6) Give the different between xylem and phloem (six point required).

(C) Answer in detail : (Any **Two**) **10**

(1) Explain the Lac operon in *E.coli* bacteria.

(2) Discuss cytoplasmic inheritance in *Mirabilis jalapa.*

(3) Explain the xylem tissue with figure.

(4) Give the chart of double stain series.

(5) Describe the polyploidy in plants.

3 (A) Answer in short : (Any **Three**) **6**

(1) What is tissue ? Write the function of collenchyma.

(2) Write the four names of Restriction endonuclease.

(3) Write short note : BT Cotton.

(4) What is Global and Local alignment ?

(5) What do you mean by selection ? Give name of the two methods of selection.

(6) What are sticky ends ? Under what conditions they get joined ?

(B) Give the Answer : (Any **Three**) **9**

(1) Give the difference between simple tissue and complex tissue. (Any six points)

(2) Write a note on : Protein data bank

(3) Write the disadvantages of production of genetically modified crops.

(4) Write three reasons of using plasmids and bacteriophages as cloning vectors.

(5) Describe the phase of block preparation : Infiltration.

(6) Give the six advantage of pure line selection.

(C) Answer in detail : (Any **Two**) **10**

(1) Give diagrammatic representation of the summary of recombinant DNA technology.

(2) Explain sequence databases.

(3) Explain anomalous secondary growth in Bougainvillea.

(4) Describe in detail modern concept of gene.

(5) Discuss : Bioinformatics is the brain of Biotechnology.