



MAL-003-001611 Seat No. _____

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

March / April - 2018

Botany : Paper - 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) Write answers of all questions in main answer book.
(2) Draw neat and labeled diagrams wherever necessary.
(3) Figures to the right side indicate full marks for the questions.

- 1** Write the correct answers in the answer book : **20**
- (1) DNA sequences that code for protein are known as _____
 - (2) The thread like cytoplasmic strands, running from one cell to other is known as _____
 - (3) Restriction endonuclease are enzymes which restrict the action of enzyme _____ Polymerase.
 - (4) State the statement true or false: Transgenic plant can be used as bioreactor.
 - (5) What is the full form of BLAST?
 - (6) The use of colchicines is involved in production of _____
 - (7) State the statement true or false : "Bt" in "Bt-cotton" indicates that it is a genetically modified organism produced through biotechnology

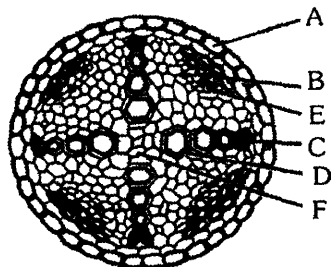
- (8) Growth ring is formed due to activity of _____ and _____ cambium.
- (9) In tissue culture roots can be induced by lower concentration of cytokinin and _____
- (10) The main technique involved in agricultural biotechnology is called _____
- (11) Write the definition of Bioinformatics.
- (12) Which 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
- (13) The length of different internodes in a culm of sugarcane is variable because of _____ tissue present.
- (14) What is the full form of NCBI?
- (15) Which of the following is incorrectly matched

(a) Explant	Excised plant part used for callus formation
(b) Cytokinins	Root initiation in callus
(c) Somatic embryo	Embryo produced from a vegetative cell

- (16) Which vector is used as a best genetic vector in plants?
- (17) Extra nuclear inheritance (Cytoplasmic inheritance) is a consequence of presence of genes in _____ of cell organs.
- (18) Match the followings in column I with column II and write the correct combination

Column-I	Column-II
Xylem vessels	Chisel-like ends.
Xylem trachieds	Obliterated lumen.
Xylem fibre	Perforated plates.

- (19) In the diagram of T.S. of Stele of Dicot Root, the different parts have been indicated by alphabets; write the name of A,B and C



- (20) Write the full form of ExPAsy.

- 2 (A) Give the Answer in short (Any **Three**) **6**
- (1) What are sticky ends? Under what conditions they get joined ?
 - (2) What is selection? Write name of the two methods of selection.
 - (3) What is Global and Local alignment?
 - (4) Write short note : BT Cotton
 - (5) What the definition of tissue and give the function of collencyma.
 - (6) Give the four names of Restriction endonucleases.
- (B) Give the Answer : (Any **Three**) **9**
- (1) Write six advantage of pure line selection
 - (2) Describe the phase of block preparation : Infiltration
 - (3) Explain : Protein data bank
 - (4) Give the difference between simple tissue and complex tissue. (Any six points)
 - (5) Write the disadvantages of production of genetically modified crops.
 - (6) Give three reasons of using plasmids and bacteriophages as cloning vectors.
- (C) Give the Answer in brief : (Any **Two**) **10**
- (1) Describe the detail modern concept of gene.
 - (2) Discuss sequence databases.
 - (3) Explain: anomalous secondary growth in Bouganvillea.
 - (4) Give diagrammatic representation of the summary of recombinant DNA technology.
 - (5) "Bioinformatics is the brain of Biotechnology" justify this statement.
- 3 (A) Give the Answer in short : (Any **Three**) **6**
- (1) Where is casperian strips? What is their function?
 - (2) Write the four function of Parenchyma tissue
 - (3) Discuss mass selection in plant.
 - (4) Write in short: extraction of enzymes
 - (5) Explain : Application of tissue culture
 - (6) Describe alignment tool : patMatch

- (B) Give the Answer in brief : (Any **Three**) **9**
- (1) Give the different between xylem and phloem (six point required)
 - (2) Describe the media preparation of tissue culture.
 - (3) Explain: Basic concept of bioinformatics.
 - (4) Describe the internal structure of a monocotyledonous stem.
 - (5) What is cytoplasmic inheritance? Explain with the example of yeast.
 - (6) Draw the labelled diagram : T.S. of salvadora stem
- (C) Describe in detail : (Any **Two**) **10**
- (1) Describe the polyploidy in plants.
 - (2) Explain the xylem tissue with figure.
 - (3) Describe the Lac operon in E. coli bacteria.
 - (4) Discus cytoplasmic inheritance in *Mirabilis jalapa*.
 - (5) Give the chart of double stain series.
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