D-003-001611 Seat No. _____

B. Sc. (Sem. VI) (C.B.C.S.) Examination

April / May – 2015

Botany : Paper - B-601

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 labelled diagrams wherever necessary.

(3) Figures to the right side indicate full marks for the question.

1 Choose Correct Answer : **20**

(1) Polyploid was discovered by :

(A) De Bary (B) Lutz

(C) Dr. Jadeja (D) Haberlandt

(2) In the lac operon model, lactose molecules function as :

(A) Inducers which bind with the operator gene

(B) Repressors which bind with the operator gene.

(C) Inducers which bind with the repressor protein

(D) Corpressors which bind with the repressor protein.

(3) Match the column :

Column-I		Column-II	
(a)	Bacterial enzymes used to cut DNA at defined sequence	(1)	Recombinant DNA
(b)	Sequence cut by restriction enzymes	(2)	Plasmids
(c)	A gene sequence from more than one origin	(3)	Restriction enzymes
(d)	Circular pieces of DNA found in bacteria	(4)	Recognition sequences

	a	b	c	d
(A)	4	3	2	1
(B)	3	4	1	2
(C)	3	4	2	1
(D)	2	1	3	4

(4) A transgenic plant is one in which :

(A) a gene from another plant is introduced

(B) a gene from another organism bacteria is introduced

(C) a gene from another organism virus is introduced

(D) All of the above

(5) Hardening in tissue culture is :

(A) Keeping at 30-50 ^{o}C temperature for about 30 minutes.

(B) Acclamatisation in the field.

(C) Plunging the vials into water at 37-40 ^{o}C.

(D) None of the above

(6) As secondary growth proceeds, in a dicot stem, the thickness of :

(A) Sapwood increases

(B) Heartwood increases

(C) Both sapwood and heartwood increase

(D) Both sapwood and heartwood remain the same.

(7) Assertion (A) : Sclerenchyma cells do not have plasmodesmata.

Reason (R) : The cell walls of some permanent tissues are heavily lignified.

(A) A and R both correct and R is correct explanation

(B) A and R both correct and R is not correct explanation of A

(C) A is correct and R is false

(D) A and R both false

(8) Collenchyma generally occurs :

(A) In scattered in dicot roots

(B) In a ring in monocot roots

(C) In patches under epidermis in dicot stem

(D) In all of the above.

(9) For light microscope the thickness of the section should be :

(A) 7 to 9 microns (B) 6 to 8 microns

(C) 20 to 40 microns (D) 10 to 20 microns

(10) In which plant due to abnormal secondary growth original vascular bundles become fan shaped ?

(A) Bauhinia (B) Salvadora

(C) Aristolochia (D) Bougainvillea

(11) Intron means :

(A) Expressing sequence

(B) Initiation site

(C) Termination site

(D) Intervening sequence

(12) Mass selection takes [X] years to produce and release new varieties.

(A) X = 9 (B) X = 8

(C) X = 7 (D) X = 5

(13) Why EDTA is included in enzyme extraction medium ?

(A) to remove cell debris

(B) to solubilise the membranes

(C) to remove heavy metals

(D) (B) and (C) both

(14) Pure selection is difficult in :

(A) Cross pollinated crops

(B) Self pollinated crops

(C) (A) and (B) both

(D) None of the above

(15) In the kitchen, biotechnology has always been practised for .....

(A) Food preservation (B) Pickle making

(C) Tenderizing meat (D) (A), (B), (C) all

(16) Bioinformatics is the new niche in ....

(A) Biotechnology (B) Biological Sciences

(C) Databases (D) Algorithms

(17) MMTK means ....

(A) Membrane molecular task kit

(B) Molecular modelling tool kit

(C) Methodology mask term kit

(D) Molecular methodology tool kit

(18) Which option allows us to get all entries in one data base ?

(A) Together (B) Link

(C) Join (D) Separate

(19) The most common molecular visualization tools is :

(A) RASMOL (B) SCOP

(C) CATH (D) GSDB

(20) A component of xylem is :

(A) Sieve tube (B) Phloem

(C) Medullary rays (D) Tracheid

2 (A) Answer in short : (any **three**) **6**

(1) Explain with diagrams : Chlorenchyma tissue

(2) Explain : Sectioning as a technique

(3) Write four functions of genes

(4) Write note on : Cloning sites

(5) Explain : Structure of lac operon

(6) Explain : BLAST

(B) Answer in brief : (any **three**) **9**

(1) Explain : Pure selection in genetics.

(2) Classify the biological databases.

(3) Distinguish between : Simple and complex tissue.

(4) Describe : Characteristics of Allopolyploids.

(5) Write note on : Multiple sequence alignment.

(6) Discuss : Interxylary phloem with diagram.

(C) Describe in detail : (any **two**) **10**

(1) How extraction of enzyme is done ? Explain

(2) How media preparation is done in tissue culture ? Give its significance.

(3) Give ten points of modern concept of gene.

(4) What is sequence alignment ? Discuss global and local alignment.

(5) Describe : Secondary growth in dicot stem.

3 (A) Answer in short : (any **three**) **6**

(1) What is mass selection ? Explain.

(2) Give four applications of enzyme.

(3) Discuss : Anomalous secondary growth.

(4) Explain : Staining for light microscopy

(5) Write functions of : Parenchyma

(6) Explain : transgene, transgenesis.

(B) Answer in brief : (any **three**) **9**

(1) Discuss : Cytoplasmic inheritance in Mirabilis.

(2) Explain : Dehydration and embedding of tissue.

(3) Write applications of tissue culture.

(4) Describe : How is host made competent ?

(5) Explain : Importance of bioinformatics.

(6) Discuss : Sieve tube and companion cells.

(C) Answer in detail : (any **two**) **10**

(1) Enumerate the process of secondary growth in dicot root with diagram.

(2) Discuss : Data banking

(3) Explain : Cytoplasmic inheritance in yeast

(4) Write essay on : Endonuclease and Exonuclease

(5) Explain words : Recognition site, Gene expression vectors, polyploidy, r-DNA.