



Seat No. _____

H-003-2016046

B. Sc. (Sem. VI) (CBCS) (W.E.F. 2019) Examination

April - 2023

Botany : B - 601

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

(New Course)

Faculty Code : 003

Subject Code : 2016046

Time : $2\frac{1}{2}$ Hours / Total Marks : 70

- Instructions :**
- (1) Attempt all the questions.
 - (2) Answer with draw neat and labeled diagram wherever necessary.
 - (3) Figures to the right side indicated total marks for the questions.

- 1** (a) Answer the following objective type questions : **4**
- (1) Who observed mitochondria first ?
 - (2) What are membrane receptors ?
 - (3) Scotch botanist _____ was the first to describe the nucleus seen in an orchid cell in 1831.
 - (4) Mention true or False : The Inner membrane of mitochondria is fairly smooth.
- (b) Answer in brief : (any **one**) **2**
- (1) Write any two function of cell wall.
 - (2) Why are mitochondria often described as the “ATP mills”?

- (c) Answer in detail : (any **one**) **3**
- (1) Draw labelled diagram of Fluid mosaic model of plasma membrane.
 - (2) Draw a labelled diagram of Ribosome.
- (d) Write a note on : (any **one**) **5**
- (1) Write in brief about structure of Mitochondria.
 - (2) Write the functions of Endoplasmic reticulum.
- 2** (a) Answer the following objective type questions : **4**
- (1) Chiasmata formation occurs during _____ phase.
 - (2) Define - crossing over.
 - (3) Who gave the term 'Mutation' ?
 - (4) Define - Coupling.
- (b) Answer in brief : (any **one**) **2**
- (1) What is repulsion ?
 - (2) What is spontaneous and induced mutation.
- (c) Answer in detail : (any **one**) **3**
- (1) Write three characteristics of crossing over,
 - (2) Explain two kinds of gene mutation according to the type of cell.
- (d) Write a note on any **one** : **5**
- (1) Describe in brief about kinds of gene mutation according to origin.
 - (2) Explain cytoplasmic inheritance in yeast.
- 3** (a) Answer the following objective type questions : **4**
- (1) Write only two names of the techniques used in recombinant DNA technology.
 - (2) Who discovered the plasmid PBR³²² ?
 - (3) Who discovered t-RNA ?
 - (4) Who given the concept of Lac operon model ?

- (b) Answer in brief : (any **one**) **2**
- (1) Write the definition of Restriction endonuclease.
 - (2) Write a short note on Southern Blotting techniques.
- (c) Answer in detail : (any **one**) **3**
- (1) Describe the structure of t-RNA.
 - (2) Explain the PBR³²² as cloning vector.
- (d) Write a note on : (any **one**) **5**
- (1) Describe the Gene expression in prokaryotes.
 - (2) Describe the Western blotting technique of recombinant DNA technology.
- 4** (a) Answer the following objective type questions : **4**
- (1) What is the full form of IAA ?
 - (2) Bt genes are obtained from _____.
 - (3) Give the name of the crop known as ‘white gold’.
 - (4) The optimum pH of the MS medium is _____.
- (b) Answer in brief : : (any **one**) **2**
- (1) Explain glassware washing technique in plant tissue culture?
 - (2) Write a short note on germplasm storage.
- (c) Answer in detail : (any **one**) **3**
- (1) Describe : Why liquid nitrogen is used in Cryopreservation technique?
 - (2) Write a note on maintenance of aseptic environment in plant tissue culture.

- (d) Write a note on : (any **one**) **5**
- (1) Explain the Ms media preparation.
 - (2) Write the general information about Bt Cotton.
- 5** (a) Answer the following objective type questions : **4**
- (1) Husk of coconut is made up of :
 - (2) Who is father of Anatomy ?
 - (3) Write the main function of Parenchyma.
 - (4) Write the name of xylem components.
- (b) Answer in brief : (any **one**) **2**
- (1) Write a short note : Collenchyma.
 - (2) Write the component name of the phloem tissue.
- (c) Answer in detail : (any **one**) **3**
- (1) Draw the labelled diagram of anomalous secondary growth in *Salvadora* stem.
 - (2) Write the general information about microtomy.
- (d) Write a note on : (any **one**) **5**
- (1) Write the step of double staining methods.
 - (2) Explain the anomalous secondary growth in *Nyctanthes* stem.
-