DP-003-2016046 Seat No. _____

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

March - 2022

B-601 : Cytology, Genetics, Molecular Biology, Biotechnology and Anatomy

Faculty Code : 003

Subject Code : 2016046

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

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

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

(3) Draw neat and labeled diagram wherever necessary.

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

1 (A) Objective type questions : **4**

(1) Who discovered fluid mosaic model for plasma membrane?

(2) True or false : Ribosomes are involved in transcription during protein synthesis.

(3) What are F1 particle?

(4) What are membrane receptors?

(B) Answer in brief : (Any **one**) **2**

(1) Write any two functions of Mitochondria

(2) What are desmosomes?

(C) Answer in detail : (Any **one**) **3**

(1) Draw a labelled diagram of Chloroplast.

(2) Write in brief about structure of Nucleus.

(D) Write a note on : (Any one) **5**

(1) Explain Fluid mosaic model of plasma membrane in detail.

(2) What is Cytology? Describe structure and function of cell wall.

2 (A) Objective type questions : **4**

(1) Define crossing over.

(2) What is coupling?

(3) Chiasma formation occurs during _____ phase.

(4) Who gave the term 'Mutation'?

(B) Answer in brief : (Any **one**) **2**

(1) Write significance of crossing over.

(2) What is mutation?

(C) Answer in detail : (Any one) **3**

(1) Describe in brief about kinds of gene mutation according to cell type.

(2) Write a note on cytoplasmic inheritance in yeast.

(D) Write a note on : (Any **one**) **5**

(1) Explain cytoplasmic inheritance in *Mirabilis jalapa*

(2) Describe Bateson and Punnet's Coupling and repulsion hypothesis.

3 (A) Objective type questions : **4**

(1) Who discovered tRNA ?

(2) Which type of restriction enzyme is precise and very useful?

(3) RNA is separated through _____ blotting.

(4) Give the full form of CAP.

(B) Answer in brief : (Any **one**) **2**

(1) What are cloning vectors? Write only name of it.

(2) Write only the names of blotting techniques.

(C) Answer in detail : (Any **one**) **3**

(1) Draw a labelled diagram of lac operon.

(2) Write a note on Southern blotting technique.

(D) Write a note on : (Any **one**) **5**

(1) Explain Restriction endonuclease in detail.

(2) Describe structure of tRNA with labelled diagram.

4 (A) Objective type questions : **4**

(1) What do you mean by transgenic plant?

(2) Give the name of the crop known as 'white gold'.

(3) In Cryopreservation technique the plant tissues are stored in liquid nitrogen at which temperature?

(4) Give the name of the genetically modified tomato variety released for cultivation.

(B) Answer in brief : (Any **one**) **2**

(1) Why liquid nitrogen is used in Cryopreservation technique?

(2) Enlist the compounds that are required for Plant Tissue Culture growth media.

(C) Answer in detail : (Any **one**) **3**

(1) What are Cryoprotectants? Explain with their examples.

(2) Write note on advantage of Plant Tissue Culture.

(D) Write a note on : (Any **one**) **5**

(1) Define plant tissue culture. Explain the protocol of plant tissue culture.

(2) Explain the mechanism used in making the Transgenic Papaya.

5 (A) Objective type questions : **4**

(1) Define anomaly.

(2) Who discovered microtome?

(3) Write the name of xylem components.

(4) True or false: Tracheids are the main component of angiosperms for water conduction.

(B) Answer in brief : (Any **one**) **2**

(1) What is complex tissue? Give the name of complex tissue.

(2) Write in brief about Anomalous structure of Bougainvillea stem.

(C) Answer in detail : (Any **one**) **3**

(1) Draw a labelled diagram of Bignonia stem showing anomalous growth.

(2) Write a note on double staining.

(D) Write a note on : (Any **one**) **5**

(1) Define secondary growth. Explain internal structure of Salvadora stem.

(2) Write in detail about types of simple tissues