DI-003-001426 Seat No. _____

B. Sc. (Biochemistry) (Sem. IV) (CBCS) Examination

March – 2022

Cell Biology And Plant Biochemistry : Paper - 401

(Old Course)

Faculty Code : 003

Subject Code : 001426

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

1 Select the correct answer for the questions from the given choices : **20**

(1) Which organelle is known as a control centre or brain of the cell?

(2) In which organelle will you find Acid phosphatase?

(3) Give important function of Glyoxyzomes.

(4) Define viruses.

(5) Which microfilaments of muscles are involved in muscle contraction?

(6) Define interphase of mitosis

(7) Define embryonic stem cells and their source.

(8) Define non homologous chromosomes.

(9) What would be the effect of high content of saturated fatty acids in membrane phospholipids on membrane fluidity?

(10) Explain peripheral and integral membrane proteins.

(11) Define ionophores with suitable examples.

(12) By which transport mechanism respiratory gases are transported across the membranes?

(13) Give name of any two succulent plants.

(14) Name the commonly used transgenic cotton variety that has insect resistance gene obtained from bacterium?

(15) Describe role of plant hormone in phototropism.

(16) Write location of dark reaction of photosynthesis in plant cell.

(17) Write the cofactors required by Nitrate reductase.
(18) Which organism is responsible for symbiotic nitrogen fixation by leguminous plants?
(19) Name the plasmid used for introduction of genes from other organisms into plants to produce transgenic plants.
(20) Define callus.

2 (A) Answer any **three** of the following questions : **6**

(1) Write the differences between viruses and viroids
(2) Give function of Golgi complex in eukaryotic cells
(3) Give important features of embryonic stem cells.
(4) Write the differences between active and passive transport
(5) Write examples of Mineral nutrients required to prepare media for Plant Tissue Culture.
(6) Describe the conversion of Nitrate to ammonia in C3 plant.

(B) Answer any **three** of the following questions : **9**

(1) Give significance of Go phase of cell cycle.
(2) Give structural features of microtubules.
(3) Explain simple diffusion and discuss with example which compounds can be transported across the membrane by simple diffusion?
(4) Describe the process of cytokinesis in cell division.
(5) Explain significance of C4 plants.
(6) Describe virus resistant plants with suitable example.

(C) Answer any **two** of the following questions : **10**

(1) Write short note on primary v/s secondary active transport
(2) Discuss common features and difference between prokaryotic and eukaryotic cells.
(3) Describe in detail with suitable diagrams the process of mitotic type of cell division.
(4) Explain Non cyclic photo system in detail.
(5) Discuss in detail: role of plant hormones in cell differentiation.

3 (A) Answer any **three** of the following questions : **6**

(1) Write the functions of plasma membrane.

(2) Why we do not classify RBCs as true living cells?

(3) Write briefly about the functions of intermediate filaments.

(4) Write a short note on nitrogen cycle with suitable diagram

(5) Write difference between luxury and housekeeping genes?

(6) Give comparative account on C3 and C4 plants.

(B) Answer any **three** of the following questions : **9**

(1) Why meiosis is called reductive type of cell division? What is its significance?

(2) Draw the labeled diagram and write main points of fluid mosaic model of plasma membrane.

(3) Briefly explain role of ethylene as plant hormone.

(4) Explain kranz anatomy with well labeled diagram.

(5) Define cell differentiation with suitable examples.

(6) What is transgenic plant? Write importance oftransgenic plants.

(C) Answer any **two** of the following questions : **10**

(1) Write an essay on structure, chemical composition and functions of nucleus.

(2) Write a short note on cell cycle and its regulation.

(3) List the factors responsible for membrane asymmetry. Differentiate between lateral diffusion and flip flop movement of phospholipids in the biological membranes with diagram.

(4) Explain Calvin cycle in plant cells.

(5) Write a short note on ionophores
