

SCHOOL OF CHEMICAL AND LIFE SCIENCE
B.Sc.-M.Sc. INTEGRATED PROGRAMME
SEMESTER II EXAMINATION, AUGUST 2022
PAPER CODE: BBC-CC04 TH
PAPER TITLE: CELL BIOLOGY

Time: 3 Hours

Maximum Marks: 75

Attempt all questions. All parts of a question must be attempted in continuation. Start the answer to the next question on a new page. Cite examples and draw labeled diagrams wherever necessary.

Q.1 Provide short answers to the following questions. Attempt all questions.

[15x1=15]

- A. "Fluid Mosaic model" of cell membrane was proposed by?
- B. Name two semi-autonomous organelles in eukaryotic cells.
- C. What is the function of nucleolus?
- D. Which organelle is known as "organelle within an organelle"?
- E. MTOC stands for?
- F. What is tonoplast?
- G. What causes Zellweger Syndrome?
- H. Function of peroxisomes?
- I. Write full form of FACS.
- J. Electron microscope was first developed by?
- K. Name a few extracellular matrix proteins.
- L. DNA replication occurs in which phase of cell cycle?
- M. Define apoptosis.
- N. Define interkinesis.
- O. What is Treadmilling?

Q.2. Attempt ANY THREE of the following.

[3x5=15]

- A. Differentiate between prokaryotic and eukaryotic cell in detail.
- B. Differentiate structure and functions of endoplasmic reticulum and golgi complex.
- C. Describe the organization of nuclear pore complex with the help of a well labeled diagram.
- D. Explain the ultra-structure and functions of chloroplast.
- E. Differentiate between the role of importin and exportin proteins in nuclear transport.

Q.3. Write short notes on ANY THREE of the following.

[3x5=15]

- A. Light microscopy
- B. Confocal microscopy
- C. Fluorescent microscopy
- D. Electron microscopy
- E. Centrifugation and its types

Q.4. Attempt ANY ONE of the following.

A. Discuss the types of cell-cell junctions and their structural details.

[15 Marks]

OR

B. "Cytoskeleton is an assemblage of three classes of protein filaments which have distinct mechanical properties, dynamics and functions". Elaborate the statement.

[15 Marks]

Q5. Answer ANY ONE of the following.

A. Describe the events happening in eukaryotic cell cycle. What is the role of checkpoints and cyclins in the cell cycle progression?

[15 Marks]

OR

B. Discuss the phases of mitotic and meiotic division with the help of well labeled diagrams.

[15 Marks]

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