647510 **BSCboMJ204x-2C** **Seat No :_____**

B.Sc. Semester - 2 (NEP-2020) Examination

MARCH/APRIL-2025

BOT: Cell Biology (Major-4)

Time: 2.00 Hours **Mark: 50**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q-1 **Answer according to instructions.** **(10)**

1) Draw a neat diagram to show ultrastructure of plant cells. Explain the function of nucleus.
2) Explain the key principle of cell theory. How did the Matthias Schleiden & Theodor Schwann contribute to its development.

OR

Q-1 **Answer according to instructions.** **(10)**

1) Explain: Endosymbiotic theory for the origin of Eukaryotic cell.
2) What is mitosis? Discuss any two phases of mitosis with a labelled diagram.

Q-2 **Answer according to instructions.** **(10)**

1) Illustrate the structure of plant cell wall, highlighting the difference between the primary and secondary cell wall.
2) Describe the mechanism of active transport with an example.

OR

Q-2 **Answer according to instructions.** **(10)**

1) Define endocytosis and explain its type with suitable examples.
2) Describe the fluid mosaic model of the plasma membrane with labelled diagram.

Q-3 **Answer according to instructions.** **(10)**

1) What is Golgi complex? Discuss the structure of Golgi complex.
2) Distinguish between smooth endoplasmic reticulum and rough endoplasmic reticulum.

OR

Q-3 **Answer according to instructions.** **(10)**

1) Explain: Function of Mitochondria.
2) Describe structure and types of Lysosomes.

Q-4 **Answer according to instructions.** **(10)**

1) What is nuclear pore? Explain the entire structure of nuclear pore complex.
2) Explain structure of intermediate filaments and its function.

OR

Q-4 **Answer according to instructions.** **(10)**

1) Write notes on: Nucleolus.
2) Describe: Molecular organization of chromatin in nucleus.

Q-5 **Answer according to instructions.** **(10)**

1) What is meiosis? Explain prophase-I with sub-stages.
2) Explain: Major chemical components of membranes.

OR

Q-5 **Answer according to instructions.** **(10)**

1) Explain: Ultrastructure of Chloroplast.
2) Differentiate between microtubules and microfilaments.

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