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1 (Sem - 2/FYUGP) MIC 21 MJ

2026

MICROBIOLOGY

(Major)

Paper : MIC4200104MJ

(Cell Biology)

Full Marks : 45

Time : 2 hours

*The figures in the margin indicate
full marks for the questions.*

✓ 1. Answer the following questions : $1 \times 5 = 5$

✓ (i) Name the organelle responsible for protein synthesis in a cell.

✓ (ii) Which organelle is known as the 'Power house of the cell'?

✓ (iii) _____ is found only in plants.
(Chloroplast/Mitochondria)
(Fill in the blank by choosing the correct option)

✓ (iv) Prokaryotic cells lack cell wall.
(The statement is True **or** False)

✓ (v) The movement of water across a semi-permeable membrane is called _____.
(Fill in the gap)

2. Write very short answer on any five of the following : $2 \times 5 = 10$

(i) Programmed cell death

✓ (ii) Function of mesosome

(iii) Gap junction

✓ (iv) Salient features of the Fluid Mosaic Model of plasma membrane

(v) Distinguish between Peroxisome and Lysosome

✓ (vi) Significance of mitosis

(vii) Function of catalase

✓ (viii) Composition of the plant cell wall

(ix) Messenger RNA

✓ (x) Microtubules

3. Write short notes on any four of the following : 5×4=20

✓ (i) Structure of mitochondria

✓ (ii) Explain the phases of the cell cycle.

(iii) Difference between rough and smooth endoplasmic reticulum.

(iv) Therapy of cancer

~~(v)~~ What is protein synthesis?

✓ (vi) Structure and function of the nucleus in a eukaryotic cell

(vii) Compare and contrast active transport and passive transport (diffusion/osmosis) in a cell with example.

✓ (viii) Differentiate between prokaryotic and eukaryotic cellular organization. D

4. Answer any one of the following questions :
10

(i) What are stem cells? Describe in detail the types of stem cells and their applications.

✓ (ii) Describe the structure of a eukaryotic cell with a labelled diagram.

(iii) Write a note on the development of cancer, its causes and the types of cancer. 4+3+3=10

(iv) Describe the types of receptor molecules involved in cellular communication and their functions.