2022

Time - 3 hours

Full Marks - 60

*Answer **all groups** as per instructions.*
Figures in the right hand margin indicate marks.
Draw labelled diagrams wherever necessary.

GROUP - A

1. Answer all questions and fill in the blanks as required. [1 × 8

(a) _____ number of connexins make a connexon.

(b) _____ type of microtubule arrangment is found in eukaryotic flagella.

(c) _____ protein helps in DNA packaging.

(d) Mad-cow disease is caused due to _____.

(e) Who discovered living cell ?

(f) Chaisma is found in which stage of prophase of meiosis ?

(g) _____ is the smallest living cell.

(h) Who discovered Nucleus ?

GROUP - B

2. Answer any eight of the following within two or three sentences each. [1½ × 8

(a) What is active transport ?

(b) What are prokaryotes ?

(c) What is tight junction ?

(d) What is endo symbiotic hypothesis ?

(e) What are heterochromatins ?

(f) What is GPCR ?

(g) Define Viroids ?

(h) What is Nucleolus ?

(i) Why Lysosomes called 'suicidal bag' ? Justify.

(j) What are Mycoplasma ?

GROUP - C

3. Answer any eight of the following within 75 words each. [2 × 8

(a) Explain different forms of ER.

(b) Explain different forms of Lysosome.

(c) Explain role of c-Amp as second messenger.

(d) Write a brief note on cell-cycle.

(e) Give a brief note on mitochondrial respiratory chain enzymes.

(f) Justify the statement, "Mitochondria are the power-house of cell".

(g) Write down the structure and functions of Peroxisome briefly.

(h) How DNA packaging occurs ? Give brief note.

(i) Differences between mitosis and meiosis.

(j) Differences between Prokaryotic cell and Eukaryotic cell.

GROUP - D

*Answer **all** questions within 500 words each.*

4. Give brief explanatory note on various models of plasma membrane structure. [6

5. Write a note on different types of cell junctions. [6

6. Give an account of structure and functions of Golgi apparatus. [6

7. Describe the structure of mitochondria. Add a note on its semi-autonomous nature. [6

8. Give a detail account of structure and functions of Nucleus. [6

9. Explain Meiosis. Mention its significance. [6

10. Describe the structure and functions of microtubules and microfilaments. [6