

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1387

I

Unique Paper Code : 2232011102

Name of the Paper : Biology of Cell : Structure
& Function

Name of the Course : B.Sc. (H) Zoology (NEP)

Semester : I (NEP-UGCF-2022)

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Answer any **FOUR** questions in all.
3. Question No. 1 is compulsory.

1. (a) Give the function of the following : (1×5=5)

- (i) Plasmodesmata
- (ii) Flippase
- (iii) Lamins
- (iv) Liposomes
- (v) Aquaporins

P.T.O.

(b) Give the contribution of **ANY FIVE** of the following scientists : (1×5=5)

- (i) Benda
- (ii) Peter Mitchell
- (iii) Blobel & Sabatini
- (iv) Christian de duve
- (v) Tim Hunt, Paul Nurse, Lee Hartwell
- (vi) Lynn Margulis

(c) Expand **ANY FIVE** of the following : (1×5=5)

- (i) GPCR
- (ii) MTOC
- (iii) GERL
- (iv) CFTR
- (v) cAMP
- (vi) ATP

2. Distinguish between **ANY FIVE** of the following :

(a) Microfilaments and Microtubules

(b) Mitosis and Meiosis

(c) Integral and Peripheral Proteins

(d) Euchromatin and Heterochromatin

(e) Tight junctions and Gap junctions

(f) Dyneins and Kinesins

(1×5=5)

3. With appropriate examples and well-labelled diagrams elaborate the ways in which molecules are passively and actively transported across the plasma membrane. (15)

OR

What is oxidative phosphorylation? Describe how the Electron Transport Chain and ATP Synthase in the mitochondria help generate ATP-the energy currency of the cell. (15)

4. (a) Illustrate the process of microtubule assembly with the help of suitable diagram. Add a note on their role in cellular mobility. (7+3=10)

P.T.O.

- (b) Discuss the role of secondary messengers in cell signaling. (5)
5. (a) What is Signal Hypothesis? How does vesicular transport take place from ER to Golgi apparatus? (5+5=10)
- (b) Which organelle in the cell is also called the "Suicidal Bag". Enumerate its functions. (5)
6. Write short notes on **ANY THREE** of the following : (5×3=15)
- (a) Receptor-mediated endocytosis
- (b) Endosymbiotic Hypothesis
- (c) Cell Cycle checkpoints
- (d) Protein modifications in ER
- (e) Nuclear Pore Complex