

- (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

(1000)

[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 &amp; 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)