

(c) Explain Endosymbiotic theory. (3)

4. (a) Give an account of the components of Electron Transport Chain and its role in cellular respiration. (7)

(b) Explain the structure of nuclear pore complex with well labelled diagram. (4)

(c) Why Nucleolus are called RNA factory, explain how various ribosomes are organized with well labelled diagram? (4)

5. (a) Explain cell cycle and discuss its molecular regulation through check points. (12)

(b) Elucidate the role of cAMP as second messenger. (3)

6. (a) Explain treadmilling in microfilaments. How are microfilaments arranged in microvilli? (8)

(b) What are the various models of plasma membrane? (7)

(500)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1051 D

Unique Paper Code : 2232011102

Name of the Paper : DSC-2 Biology of Cell:
Structure and function

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

Semester : I

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 **FOUR** questions in all.

3. **Question No. 1** is compulsory

1. (a) Define: (1×3=3)

(i) Lipid rafts

(ii) Lamins

P.T.O.

(iii) Microfilaments

(b) Write exact location and function of the following (any three): (1×3=3)

(i) Mannose-6-phosphate

(ii) Cytochrome p450

(iii) SDH

(iv) Hydrolases

(c) State the contributions of (any three): (1×3=3)

(i) Hugh Davson and James Danielli

(ii) Camillo Golgi

(iii) David Sabatini and Gunter Blobel

(iv) Christian de Duve

(d) Fill in the blanks: (1×4=4)

(i) Ion channels that open in response to binding of neurotransmitters or other signalling molecules are called _____.

(ii) _____ organelle is also referred to as dictyosome.

(iii) Chromosome is maximally condensed at _____ stage.

(iv) _____ ions are used to generate one molecule ATP in mitochondria.

(e) Expand the following: (1×2)

(i) SRP

(ii) MPF

2. (a) Describe the operation of $\text{Na}^+ - \text{K}^+$ pump with the help of suitable diagram. (6)

(b) Explain the various modifications that proteins undergo in the lumen of ER. (7)

(c) Why are Lysosomes called "Suicidal bags"? (2)

3. (a) How are cells organized into tissues? Explain the various types of "Cell-to-Cell interactions". (8)

(b) Discuss how peroxisomes are involved in detoxification process. (4)

P.T.O.