[This question paper contains 3 printed pages.]

Sr. No. of Question Paper : 2310 **F-4** **Your Roll No.....**

Unique Paper Code : 2231202

Name of the Course : **B.Sc. (H)**

Name of the Paper : Cell and Cellular Processes DC-I, Paper IV

Semester : II

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

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

1. (a) Define:

   (i) Liposome

   (ii) Viroid

   (iii) Necrosis

   (iv) Glycocalyx

   (v) Nucleosome (5)

   (b) Differentiate between the following:

   (i) Tight junction and Gap junction

   (ii) Intrinsic and Extrinsic proteins

   (iii) Symport and Antiport

   (iv) Prokaryotic cell and Eukaryotic cell (8)

P.T.O.

(c) Write the contribution/s of the following scientists:

(i) David Sabatini and Gunter Globel

(ii) Tim Hunt

(iii) Jonathan Singer and Garth Nicolson

(iv) Peter Mitchell

(v) A. Kornberg (5)

(d) Give the location and significance of the following:

(i) Adenylyl Cyclase

(ii) Signal peptidase

(iii) Microsome

(iv) Glycosyl transferase (4)

(e) Expand the following:

(i) MAPs

(ii) Cdks

(iii) RTKs (3)

(f) Fill in the blanks:

(i) Two products of phospholipase C activity that serve as second messengers are _____ and _____ .

(ii) This structure found within the nucleus contains much RNA. This structure is called the _____.

(iii) _____ is the organelle involved in packaging and cell secretions. (2)

2. (i) Explain the process or signal transduction through G protein coupled receptor. (8)

(ii) Write briefly about the biogenesis of ribosome. (4)

3. (i) Explain with diagram the extrinsic and intrinsic pathways or apoptosis. (8)

   (ii) Give an account of assembly and functions of intermediate filaments. (4)

4. Give the detailed account of cell cycle regulation, Add a note on check points. (12)

5. (i) Describe the role of endoplasmic reticulum and golgi in cell secretion. (6)

   (ii) Explain the topography of electron transport system in mitochondria. (6)

6. Describe the fluid mosaic model of the cell membrane and explain the various transport mechanisms across the membrane. (12)

7. Write short notes: (any **three**)

   (i) Clathrin coated pits

   (ii) Intracellular receptors in signal transduction

   (iii) Nuclear pore complex

   (iv) Mitochondria as semiautonomous organelle

   (v) Lysosomes (4,4,4)

(100)