[This question paper contains 2 printed pages.]

Sr. No. of Question Paper : 5952 **D** **Your Roll No.....**

Unique Paper Code : 216/223/381

Name of the Course : **B.Sc. (H.) (Anthropology, Biochemistry, Biological Sciences, Biomedical Science, Botany, Microbiology, Zoology)**

Name of the Paper : Cell Biology – I (CBHT-301)

Semester : III

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 **five** questions in all including Question No. **1** which is compulsory.
3. All the parts of a question must be attempted together.

1. (a) Name the following : (1×5=5)
   (i) Any two lysosomal storage diseases
   (ii) A marker enzyme for chloroplast
   (iii) A non membranous cell organelle
   (iv) A protein forming nuclear lamina
   (v) A technique used to separate proteins based only on differences in their size

   (b) Match the following : (1×5=5)

A	B
(i) Prions	(a) Acid phosphatase
(ii) Lysosomes	(b) Density gradient centrifugation
(iii) Smooth ER	(c) Stanley Prusiner
(iv) GFP	(d) Lipid synthesis
(v) Sucrose	(e) Fluorochrome

   (c) Define the following : (1×5=5)
   (i) Empty magnification
   (ii) Flippases
   (iii) Viroids
   (iv) Mycoplasmas
   (v) Nucleoporins

P.T.O.

2. Differentiate between **any five** of the following (**three** important differences) :
   (a) Confocal and fluorescence microscope
   (b) Peroxisomes and lysosomes
   (c) *E.coli* and Tobacco mosaic virus
   (d) Ion exchange and paper chromatography
   (e) Microtubules and microfilaments
   (f) Nucleoid and nucleus (5×3=15)

3. Write short notes on **any three** of the following:
   (a) Protein import into the mitochondrial matrix
   (b) Signal hypothesis
   (c) Mechanism of protein folding and processing
   (d) Phase contrast microscope (5×3=15)

4. Discuss briefly **any five** of the following :
   (i) Biogenesis of rRNA
   (ii) Targeting of lysosomal proteins
   (iii) GPI anchors
   (iv) Functions of SER
   (v) Density gradient centrifugation
   (vi) Chromatin (3×5=15)

5. Attempt **any three** of the following :
   (a) Chloroplast is a multifunctional organelle. Comment.
   (b) Describe the structure of nuclear pore complex with the help of suitable diagram.
   (c) Explain the principle and discuss the applications of TEM.
   (d) Comment on the structure and function of the nucleolus. (5×3=15)

6. (i) Draw well-labeled diagram of ultra structure of mitochondrion along with the electron transport chain components. Discuss the functions of mitochondria. (7.5)
   (ii) Describe vesicular transport from ER to Golgi bodies with the help of schematic diagrams and write a note on recycling of receptors in the membranes. (7.5)