This question paper contains 4 printed pages]

Roll No. | | | | | | | | | | |

S. No. of Question Paper : **8537**

Unique Paper Code : **216/223/381** **C**

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

Name of the Course : **B.Sc. (Hons.) (Anthropology, Biochemistry, Biological Sciences, Biomedical Science, Botany, Micro-biology, Zoology)**

Semester : **III**

Duration : **3 Hours** Maximum Marks : **75**

(Write your Roll No. on the top immediately on receipt of this question paper.)

Answer *five* questions in all, including Q. No. **1** which is compulsory.

Illustrate your answers with appropriate diagrams wherever necessary.

1. (A) Fill in the blanks (any *five*) : 5

(*i*) ..... is the basic unit of chromatin.

(*ii*) One angstrom is equal to ..... nanometer.

(*iii*) Signal hypothesis was proposed by ..... .

(*iv*) ..... is a lysosomal storage disease.

(*v*) ..... is a marker enzyme for mitochondria.

(*vi*) ..... is a technique to determine the size and granularity of the cell using laser light.

P.T.O.

(B) Define the following (any *four*) : 4

(*i*) Heterochromatin

(*ii*) Importin

(*iii*) Autophagy

(*iv*) Nucleoid

(*v*) Resolving power

(*vi*) Lamins.

(C) Expand the following (any *five*) : 5

(*i*) SnoRNA

(*ii*) MAPs

(*iii*) PPLO

(*iv*) NLS

(*v*) SEM

(*vi*) ERGIC.

(D) Match the following (any *five*) : 5

(*i*)	Glycosylation	Mitochondria
(*ii*)	Acid Phosphatase	Plastid
(*iii*)	Osmium tetraoxide	Golgi bodies
(*iv*)	Microtubule	Fixative
(*v*)	Amyloplast	Lysosome
(*vi*)	Endosymbiont	Tubulin.

2. Draw well labelled diagrams and write a note on their functions (Attempt any *two*) : 7,7

   (*a*) Nuclear Pore Complex.

   (*b*) Ultrastructure of mitochondria and indicate the location of respiratory chain and phosphorylating complexes.

   (*c*) Ultrastructure of chloroplast and indicate the location of photosystems and phosphorylating complex.

3. Attempt any *two* of the following : 7,7

   (*a*) Explain the import of protein into mitochondrial matrix.

   (*b*) Write the principle and applications of confocal microscopy.

   (*c*) Differentiate between microtubules and microfilaments. Explain the assembly and disassembly of actin filaments.

4. (*a*) Describe the role played by various forms of lysosomes. How are lysosomes different from peroxisomes ?

   (*b*) Explain the role of rough endoplasmic reticulum in the secretory pathway. 7,7

5. Differentiate between any *four* of the following : 4×3½

   (*a*) Differential and density gradient centrifugation

   (*b*) Heterochromatin and euchromatin

   (*c*) Gel filtration and ion exchange chromatography

   (*d*) Light and electron microscopy

   (*e*) Dynein and kinesin

   (*f*) Prokaryotic and eukaryotic cell.

6. (*a*) Explain vesicular transport with reference to cargo selection, coat proteins, vesicle budding and vesicle fusion.

(*b*) Describe the relationship between Nucleolar Organizing Region and biogenesis of *r*RNA. 7,7

7. Write notes on any *four* of the following : 4×3½

(*a*) Phages and Viroids

(*b*) Semiautonomous organelles

(*c*) Functions of SER

(*d*) Thin layer chromatography

(*e*) X-ray diffraction analysis

(*f*) Spindle apparatus.