[This question paper contains 4 printed pages.]

Sr. No. of Question Paper: 654 G Your Roll No......

Unique Paper Code : 216/223/381

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

Name of the Course : B.Sc. (H.) (Anthropology, Biochemistry, Biological

Sciences, Biomedical Sciences, Botany, Micro-biology,

Zoology)

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 Q. No. 1, which is compulsory.

3. All the parts of a question must be attempted together.

1. (a) Define the following (any five): $(1 \times 5 = 5)$

- (i) Viroids
- (ii) Mycoplasma
- (iii) Nucleoporins
- (iv) Flippase
- (v) Importins
- (vi) Lamins

	(b)	Expa	nd the following (any five):			(1×5=5)
		(i)	NES			
		(ii)	MAPs			
		(iii)	SEM			
		(iv)	SRP			
		(v)	NLS			
		(vi)	PPLO			
	(c)	Matc	h the following :			$(1\times5=5)$
			<u>A</u>	<u>B</u>		
		(i)	Lysosome	(a)	density gradient	
		(ii)	Smooth ER	(b)	Golgi body	
		(iii)	Glycosylation	(c)	Tubulin	
		(iv)	Microtubule	(d)	Acid phosphatase	
		(v)	Sucrose	(e)	detoxification by p450	
2.	Dif	ferenti	ate between any five of the follo	wing	g: (3×5=15)
	(i)	Heter	rochromatin and euchromatin			
	(ii)	Conf	ocal and fluorescence microscopy	r		
	(iii)	Prok	aryotic cell and eukaryotic cell			
	(iv)	Micro	otubules and microfilaments			

(v) Nucleoid and Nucleus

	(vi)	Peroxisomes and lysosomes	
	(vii)	Differential and density gradient centrifugation	
3.	Wri	te short notes on any three of the following:	(3×5=15)
	(i)	Protein import into the mitochondrial matrix	
	(ii)	Signal hypothesis	
	(iii)	Ion exchange chromatography	
	(iv)	Mechanism of protein folding and processing	
	(v)	Protein glycosylation within Golgi	
4.	(a)	Mention the types and functions of intermediate filaments.	(5)
	(b)	Describe the structure of Nuclear Pore Complex with diagrams.	suitable
	(c)	Describe selective transport of proteins to and from nucleus.	(5)
5.	(a)	Describe briefly the Nucleolus and rRNA processing.	(7½)
	(b)	Explain the mechanism of vescicular transport with reference	e to cargo
		selection, coal proteins and vesicle budding.	(7½)
6.	(a)	Draw well labelled diagram of ultrastructure of Mitochondrion the electron transport chain components. Discuss the function	•
		organelle.	(9)
	(b)	Describe the structure and function of lysosomes.	(6)

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- 7. (a) Discuss the ultrastructure, chemical composition and main functions of Chloroplast. Add a note on semiautonomous nature of chloroplast. (8)
 - (b) Explain the principle and discuss the application of TEM. (7)