



BRAINWARE UNIVERSITY

Term End Examination 2023-2024

Programme – M.Sc.(BT)-2022/M.Sc.(BT)-2023

Course Name – Cell biology

Course Code - MBTC103

(Semester I)

	Marks: 60 he figure in the margin indicates full marks. Can own words as fai	Time: 2:30 Hours didates are required to give their answers in their as practicable.]	
1.	Grou (Multiple Choice Choose the correct alternative from the following	Type Question) 1 x 15=15	
(i) Choose what is the primary function of the nuclear envelope surrounding the nuclear			
	a) Regulation of ion transport c) Synthesis of ribosomes Select which organelle is involved in the detoxic contains enzymes that neutralize harmful substitutions.	 b) Protection of genetic material d) Lipid storage fication of drugs and poisons and 	
(iii)	a) Peroxisomes c) Endoplasmic reticulum Cite how many filamentous structures together	b) Lysosomes d) Chloroplast r comprise the cytoskeleton?	
(iv)	a) 1 c) 3 Identify the incorrect statement about the term	b) 2d) 4ninologies related to protein sorting?	
	a) Subcellular localization is an integral part of protein functionality	 b) Many proteins exhibit functions only after being transported to certain compartments of the cell 	
	 c) All the proteins exhibit functions after being transported to certain compartments of the cell 	d) Protein sorting is also known as protein targeting	
(v)	State appropriately to fill the blank: Signal sequential some specific features. They all have a more positively charged residues.		

(vi) Interpret which of the following occurs in meiosis but not in mitosis?

a) Attachment of spindle fibers to kinetochore

c) Separation of sister chromatids at anaphase

a) weak, hydrophilic

c) strong, hydrophilic

b) weak, hydrophobic

d) strong, hydrophilic

metaphase plate

division

b) Replication of DNA prior to start of cell

d) Pairing of homologous chromosomes at

(vii)	Select how many amino acid residues are there	In apidatini				
	a) 72	b) 73				
d) 76 c) 74						
(viii)	Infer which are the two subassemblies of 26S pr	b) 20S regulatory particle and 19S core				
	a) 20S core particle and 19S regulatory	narticle				
	particle	d) 20S core particle and 18S regulatory				
	c) 18S core particle and 19S regulatory	particle				
/iv/	particle Recognise that secretory proteins are synthesize	ed by				
(IX)		b) Ribosomes on endoplasmic reticulum				
	a) Ribosomes on the nuclear membrane	d) None of the mentioned				
(v)	c) Free ribosomes Choose which signaling process results in an am	plification of the initial signal, creating a				
(^)	larger response?					
	-	b) Signal transduction				
	a) Signal amplificationc) Signal reception	d) Signal termination				
(xi)	Select which type of cell receptor is embedded	in the cell membrane and responds to				
(///	hydrophilic signaling molecules?					
	a) Intracellular receptors	b) G-protein coupled receptors				
	c) Tyrosine kinase receptors	d) Ion channel receptors				
(xii)	Select what is the primary function of paracrine	signaling?				
()	a) Local communication between neighboring	b) Long-distance communication within a	in			
	cells	organism				
	c) Communication between different species	d) Intracellular communication				
(xiii)	Interpret the common component of fungal cel	I walls.				
•	a) Pectin	b) Lignin				
	c) Chitin	d) Peptidoglycan				
(xiv)	State which of the following describes the "Flip	-flop" mechanism in plasma membrane:				
•	a) Passive transport	b) Active transport				
	c) Lateral diffusion	d) Transverse diffusion				
(xv) Recognise that Mannans and Xylans are common constituents of cell wall of which of						
` '	the following organism:					
	a) Algae	b) Fungi				
	c) Cyanobacteria	d) Archae				
	Grou	-				
	(Short Answer T	ype Questions)	3 x 5=15			
2. E	cplain the structure of chloroplast with illustration	on.	(3)			
3. A	nalyse why is meiosis referred to as reductional	division, whereas mitosis is referred to as	(3)			
e	quational division?					
4. W	, hat is the primary structural component of plar	nt cell walls, and how does it contribute to	(3)			
th	eir rigidity?					
5. D	efine in brief the process of pinocytosis.		(3)			
6. Ex	plain the role of signal molecules in cell signalli		(3)			
	_	PR	(-)			
E۱	aluate the significance of Cyclin dependent kind	ases in cell cycle regulation	(3)			
		up-C	5 x 6=30			
(Long Answer Type Questions) 5 x 6						
7	7. Evaluate how the cytoskeleton participate in intracellular transport, and what motor (5)					
	proteins are involved in this process?	racendial transport, and what motor	(5)			

8. Analyse what do we mean by "capping" of actin filaments?	(5)
9. Analyse the importance of different G protein coupled receptor with an example.	(5)
10. Infer the necessity of different voltage gated channels on the cell membrane, with example.	(5)
11. What do we mean by electrical properties of membrane? Define its function in the cell.	(5)
12. Evaluate what is kinetochore complex and what is its role in transport of chromosomes?	(5)
OR	
Evaluate the structure of nucleolus in detail.	(5)
