

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**BSc DEGREE EXAMINATION DECEMBER 2024
(First Semester)**

Branch- BIOTECHNOLOGY

CELL BIOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	In the plasma membrane, Glycolipids are usually situated in _____. (a) cannot be predicted, it varies according to the cell types (b) inner leaflet of the plasma membrane (c) the outer leaflet of the plasma membrane (d) evenly distributed in both outer and inner leaves of plasma membrane	K1	CO1
	2	Ion carriers are located in _____. (a) Plasma membranes (b) Cell wall (c) Nucleus (d) Cellular space	K2	CO1
2	3	Microfilaments are composed of the protein _____. a) actin b) myosin c) tubulin d) niacin	K1	CO2
	4	What is macula adhaerens? a) Adheren junction b) Plasmodesmata c) Cadherins d) Desmosomes	K2	CO2
3	5	Which of the following cell organelle is called the powerhouse of the cell? (a) Nucleus (b) Lysosomes (c) Chloroplast (d) Mitochondria	K1	CO3
	6	Which of the following cell organelle is involved in the breakdown of organic matter? (a) Lysosomes (b) Cytoplasm (c) Golgi bodies (d) Mitochondria	K2	CO3
4	7	Protein glycosylation does not have significant effect on which of the following? a) Protein folding b) Protein distribution c) Protein stability d) Protein synthesis	K1	CO4
	8	Which of the following is a donor of the methyl group in methylation of proteins? a) Methionine b) Methane c) O-adenosyl methionine d) S-adenosyl methionine	K2	CO4
5	9	In which phase of cell cycle is DNA replicated? a) G ₁ phase b) S phase c) G ₂ phase d) M phase	K1	CO5
	10	Passage of a cell through stages of cell cycle is controlled by a protein kinase that phosphorylates many different proteins at appropriate times name it. a) Cdk activating kinase b) Cyclin-dependent kinase c) Cyclins d) Tyrosine kinase	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain cell evolution theory, from the prokaryotes to eukaryotes.	K3	CO1
		(OR)		
	11.b.	Identify the role of proton pump in cell respiration.		
2	12.a.	How cell make use of extracellular matrix to communicate with each other.	K3	CO2
		(OR)		
	12.b.	Mention the three types of protein fibers in the cytoskeleton and state their function.		
3	13.a.	Explain the structure and functions of mitochondria.	K2	CO3
		(OR)		
	13.b.	Outline the different stages of mitosis.		
4	14.a.	Explain the mechanism of endocytosis.	K4	CO4
		(OR)		
	14.b.	Give an outline of the mechanisms and regulation of protein synthesis in mitochondria.		
5	15.a.	Explain the role of oncogenes in tumor development.	K4	CO5
		(OR)		
	15.b.	Categorise the three types of a cell surface receptors.		

SECTION - C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Explain in detail the fluid mosaic model of cell membrane with diagram.	K4	CO1
2	17	Classify the three main types of cell-cell junctions and state their function.	K4	CO2
3	18	Examine the role of chloroplast in photosynthesis.	K4	CO3
4	19	Discuss about translational modification of protein in endoplasmic reticulum.	K4	CO4
5	20	Examine cell cycle and check point with diagram.	K4	CO5

Z-Z-Z END