

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2026
(First Semester)

Branch - **BIOCHEMISTRY**
SUBCELLULAR BIOCHEMISTRY

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	Cholesterol contains _____ a) Hydrophobic head b) Hydrophilic head c) Hydrophilic tail d) Hydrophilic fats	K1	CO2
	2	Which integral protein in the red blood cell membrane is known for maintaining cell stability and shape and features a single transmembrane helix? a) Band 3 protein b) Ankyrin c) Glycophorin A d) Spectrin	K2	CO3
2	3	For every ATP molecule consumed, how many sodium ions are pumped out of the cell? a) 2 b) 3 c) 5 d) 1	K1	CO2
	4	Pinocytosis involves the engulfment of: a) Solid particles b) Large macromolecules c) Extracellular fluid and dissolved solutes d) Waste products from the cell	K2	CO3
3	5	Peroxisomes are classified as: a) Energy-transforming organelles b) Membrane-less organelles c) Microbodies d) Inclusion bodies	K1	CO2
	6	Which cellular structure is NOT composed of microtubules in the same way as the axoneme of cilia and flagella? a) Microtubules b) Intermediate Filaments c) Cilia d) Flagella	K2	CO3
4	7	What is the site of rRNA synthesis within a cell? a) Chromatin b) Nucleolus c) Perinuclear space d) Centrosomes	K1	CO2
	8	The site of aerobic respiration in eukaryotic cells is _____ a) Peroxisome b) Plastid c) Mitochondria d) Cilia	K2	CO3
5	9	Which of the following is used by cells to interact with other cells? a) Cell junctions b) Cell adhesions c) Cell detectors d) Cell tubules	K1	CO2
	10	Where can scientists obtain stem cells? a) Only from an embryo b) Only from tissues in the body c) Only from the brain d) From an embryo or tissues in the body	K2	CO3

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.	Outline the structure of Cell wall in detail.	K1	CO2
		(OR)		
	11.b.	Recall the Membrane Proteins in detail.		
2	12.a.	Elaborate about the various Ion channels.	K2	CO3
		(OR)		
	12.b.	Interpret the process of Osmosis.		
3	13.a.	Examine the structural and functional role of Microtubules.	K3	CO5
		(OR)		
	13.b.	Determine how Lysosomes acts as a suicidal bag.		
4	14.a.	Explain the structure of Nuclear membrane.	K4	CO1
		(OR)		
	14.b.	Characterise the features of Golgibodies with a labeled diagram.		
5	15.a.	Interpret the role of Integrin.	K5	CO1
		(OR)		
	15.b.	Summarise the structural features of Desmosomes with a labelled diagram.		

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	Identify the features of Fluid mosaic model with a neat labeled diagram.	K1	CO2
2	17	Describe the process of phagocytosis in detail.	K2	CO3
3	18	Investigate the role of Peroxisomes, Glyoxisomes with its structural features.	K3	CO5
4	19	Illustrate the strycture and function of Mitochondria.	K4	CO1
5	20	Explain the Extra cellular matrix in detail.	K5	CO1