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

# **BSc DEGREE EXAMINATION MAY 2025**

(Second Semester)

#### Branch - BOTANY

# CYTOLOGY AND MOLECULAR BIOLOGY

Maximum: 75 Marks Time: Three Hours

#### SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

 $(10 \times 1 = 10)$ 

Module No				
No.	Question	Question	K Level	со
No. 1	<b>No.</b>	The passage of water across a selectively permeable membrane is known as  a) Osmosis b) Diffusion c) Facilitated diffusion d) None of the above	<b>K</b> 1	CO1
	2	A plant cell wall is mainly composed of a) Protein b) Cellulose c) Lipid d) Starch	K2	CO1
2	3	Ribosomes are produced and assembled in a) mitochondria b) cytoplasm c) nucleolus d) Golgi apparatus	K1	CO2
	4	Which pigment constitutes majorly in absorbing sunlight for photosynthesis?  a) Chlorophyll a  b) Chlorophyll b  c) Xanthophyll  d) Anthocyanin	K2	CO2
3	5	Which of the following is true about enzymes?  a) Proteins b) Nucleic acids c) Carbohydrates d) DNA molecule	K1	CO3
	6	The structure formed by joining the amino acids by a peptide bond is called structure of a protein.  a) quaternary b) tertiary c) secondary d) primary	K2	CO3
4	7	The monomeric unit of nucleic acid are called  a) Nucleotides b) Nucleosides c) Pyrimidines d) Purines	K1	CO4
	8	RNA contains Uridine, it is a a) pyrimidine b) purine c) nucleotide d) nucleoside	K2	CO4
5	9	A genomic DNA possesses functioning units, a group of genes under the influence of promoters known as a) genes b) operons c) anticodon d) codon	K1	COS
	10	Basic tools of genetic regulation are the ability of some proteins to bind to specific a) regulatory DNA sequences b) regulatory RNA sequences c) enzymes of cells d) promoter portions of genes	K2	CO5

#### SECTION - B (35 Marks)

### Answer ALL questions

ALL questions carry EQUAL Marks

 $(5 \times 7 = 35)$ 

Module No.	Question No.	Question	K Level	СО
1	11.a.	Differentiate between Osmosis and Diffusion.		
	(OR)		K4	CO1
	11.b.	List out the functions of cell wall.	7	
	12.a.	Elucidate the structure and functions of chloroplast.	K5	CO2
2		(OR)		
	12.b.	Explain the ultra structure and functions of Nucleus.		
	13.a.	Classification of Proteins based on its chemical composition.		CO3
3	-	(OR)	K4	
	13.b.	Inspect the biological role of proteins.	7	
	14.a.	Predict the chemical composition of nucleic acid.		CO4
4		(OR)	K6	
	14.b.	Briefly describe the types of RNA.	7	
	15.a.	Identify the structure of Lamp brush chromosomes.		CO5
5		(OR)	K3	
	15.b.	Organize the structural organization of chromosome.	] _	

# SECTION -C (30 Marks) Answer ANY THREE questions

ALL questions carry EQUAL Marks

 $(3 \times 10 = 30)$ 

Module No.	Question No.	Question	K Level	СО
1	16	Justify that "Cell as a complete functional unit of living systems".	K5	CO1
2	17	Explain the fluid mosaic model of plasma membrane with a neat diagram.	K5	CO2
3	18	Analyze the hierarchy of protein structures.	K4	CO3
4	19	Discuss about the 'DNA as genetic material'.	<b>K</b> 6	CO4
5	20	Give an elaborate account on Gene regulation in Prokaryotes.	K6	CO5