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25BCP104

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Branch – **BIOCHEMISTRY**

CELLULAR 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	Indicate the type of transport of Glucose in Erythrocyte membrane a) Cotransport b) Symport c) Antiport d) Uniport	K1	CO1
	2	Give the source of phosphate in the Group translocation process a) Adenosine Triphosphate b) Guanosine Triphosphate c) Phosphoenolpyruvate d) Fructose 6 phosphate	K2	CO1
2	3	Name the cytochrome which is called as Mobile carrier a) Cytochrome b b) Cytochrome c c) Cytochrome a d) Cytochrome a3	K1	CO2
	4	Clarify the amino acid that is involved in the transamination reaction of Malate – Aspartate shuttle a) Glutamate b) Glycine c) Alanine d) Serine	K2	CO2
3	5	Select the mode of cell signals in which cell sends signals to nearby cells a) Autocrine signaling b) Endocrine signaling c) Juxtacrine signaling d) Paracrine signaling	K1	CO3
	6	Observe the one that activate Ras a) Hydrolysis of GTP to GDP b) Exchanging of GDP for GTP c) Hydrolysis of ATP to ADP d) Exchanging of ADP for ATP	K2	CO3
4	7	Label the check point of cell cycle that ensures DNA is fully replicated and undamaged before mitosis a) G_1 Phase check point b) G_2 Phase check point c) M Phase check point d) S Phase check point	K1	CO4
	8	Predict the correct composition of Maturation Promoting Factor a) Cyclin A and cdk2 b) Cyclin D and cdk4 c) Cyclin E and cdk2 d) Cyclin B and cdk1	K2	CO4

Cont...

5	9	Which chemical carcinogen is associated with liver cancer due to microbial contamination of grains and nuts? a) Benzopyrene b) Benzene c) Aflatoxin d) Nicotine	K1	CO5
	10	Give the name of virus that activate oncogene in human cervical cancer a) Human papilloma virus b) Epstein – Bar virus c) Hepatitis B virus d) Human T- cell leukemia virus	K2	CO5

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.	Elaborate the transport mechanism of H^+ /K^+ ATPase.	K2	CO1
		(OR)		
	11.b.	Give the mechanism of transport process driven by light.		
2	12.a.	Illustrate Redox reaction with example.	K3	CO2
		(OR)		
	12.b.	Sketch the Glycerol phosphate shuttle system.		
3	13.a.	Point out the cell signaling molecules and their receptors.	K4	CO3
		(OR)		
	13.b.	Explain in detail on CREB.		
4	14.a.	Evaluate the genetic studies with S.pombe.	K5	CO4
		(OR)		
	14.b.	Determine the important check points in cell cycle.		
5	15.a.	Discuss on various chemical Carcinogens.	K6	CO5
		(OR)		
	15.b.	Outline the mechanism of Tumor Suppressor genes.		

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	Sketch the steps in Receptor mediated endocytosis.	K3	CO1
2	17	Elaborate the Chemiosmotic mechanism of Oxidative phosphorylation.	K2	CO2
3	18	Examine the structure and mechanism of G -Protein coupled receptors in cell signaling pathway.	K4	CO3
4	19	Explain the pathways of Apoptosis.	K5	CO4
5	20	Summarize the properties of cancer cell.	K6	CO5

Z-Z-Z END