22BCU520N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2025
(Fifth Semester)

Branch – **BIOCHEMISTRY**

INTERMEDIARY METABOLISM

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	What is the study of energy relationships and its conversions in biological systems? a) Biophysics b) Biotechnology c) Bioenergetics d) Microbiology	K1	CO1
	2	Give the other name of complex 2 of Electric Transpert chain a) NADH dehydrogenase b) Succinate dehydrogenase c) Cytochrome bc1 complex d) Cytochrome oxidase	K2	CO1
2	3	Which of the following enzyme catalyzes the first step of glycolysis? a) Hexokinase b) Pyruvate kinase c) Glucokinase d) Phosphofructokinase-1	K1	CO2
	4	Predict the first product of TCA cycle a) Fumaric acid b) Oxalic acid c) Malic acid d) Citric acid	K2	CO2
3	5	Name the most active organs in the animal body which have the ability to synthesize triacylglycerol? a) Spleen b) Kidney c) Liver and intestines d) Adipose tissues	K1	CO3
	6	Which of the following is the major point of regulation on the pathway to cholesterol? a) Thiolase b) HMG co-A synthase c) HMG co-A reductase d) Pyruvate kinase	K2	CO3
4	7	Name the amino acid which does not take part in transamination during amino acid catabolism. a) Proline b) Threonine c) Lysine d) Serine	K1	CO4
	8	Which of these is a hereditary disease caused due to an error in amino acid metabolism? a) Homocystinuria b) Albinism c) Phenylketonuria d) Branched-chain ketoaciduria	K2	CO4
5	9	What is the final product of purine degradation in mammals? a) Guanine b) Inosine c) Uric acid d) Hypoxanthine	K1	CO5
	10	Name the genetic disorder which is caused by the deficiency of enzyme HGPRT? a) SCID b) Lesch-Nyhan syndrome c) Cystic fibrosis d) Down syndrome	K2	CO5

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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.	Summarize the Exergonic and Endergonic reactions.	K2	CO1
		(OR)		
	11.b.	Infer the Chemiosmotic hypothesis.		
2	12.a.	Construct the Fermentation and Pasteur effect.	K3	CO2
		(OR)		
	12.b.	Identify the Glycogenolysis in muscle and liver.		
3	13.a.	Organize the β-oxidation of fatty acids containing odd number of carbon atoms.	K3	CO3
		(OR)		
	13.b.	Develop the biosynthesis and degradation of TAG.		
4	14.a.	Analyze the Transamination of amino acids.	K4	CO4
		(OR)		
	14.b.	Examine the Catabolism of cysteine.		
5	15.a.	Analyze the Inhibitors of purine and pyrimidine synthesis.	K4	CO5
		(OR)		
	15.b.	Examine the Biological methylation and its significance in nucleotide metabolism.		

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	Summarize the Electron transport chain.	K2	CO1
2	17	Organize the pathway and energetics of Glycolysis.	K3	CO2
3	18	Illustrate the Fatty acid biosynthesis in cytosol, microsome and mitochondria.	K3	CO3
4	19	Outline the reactions of Urea Cycle.	K4	CO4
5	20	Elaborate the De novo biosynthesis of purine nucleotides.	K6	CO5

Z-Z-Z END