

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2024
(Second Semester)

Branch -**BIOCHEMISTRY**
MICROBIAL 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	Specify the type of organisms involved in carbon fixation. a) Autotrophic b) Cyanobacteria c) algae d) All	K1	CO1
	2	Choose the most important pathway involved in change of atmospheric CO ₂ to organic compounds. a) Benson Calvin Cycle b) TCA c) Glycolysis d) PPP	K2	CO1
2	3	Select the coenzyme used in phosphotransferase enzyme system. a) NAD b) ATP and GTP c) FAD d) Mg	K1	CO2
	4	In bacteria find out the enzyme not involved in ED pathway compared to glycolysis. a) PFK1 b) PGM c) PK d) aldolase	K2	CO2
3	5	Choose the common industrial enzyme used in detergents. a) amylase b) catalase c) Phosphatase d) Protease	K1	CO3
	6	Identify the species that produces alpha amylase. a) Bacillus subtilis b) Aspergillus c) Rhizopus d) Penicillium	K2	CO3
4	7	Recall the end product in odd chain fatty acid metabolism. a) Pyruvate b) Propionyl CoA c) Acetyl CoA d) Acetate	K1	CO4
	8	Determine the fat that formed by addition of hydrogen to vegetable oil makes it solid at room temperature. a) Saturated fat b) PUFA c) Trans fat d) MUFA	K2	CO4
5	9	Tell the amino acid that links carbohydrate and amino acid metabolism. a) methionine b) alanine c) glutamate d) pyruvate	K1	CO5
	10	Which organism is commonly used in degrading lignocellulose? a) Fungi b) bacteria c) yeast d) moulds	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.	Discuss about the lipopolysaccharides in gram negative bacteria.	K2	CO1
		(OR)		
	11.b.	Illustrate on mechanism of photosynthesis by autotrophs.		
2	12.a.	Show how oxidative PPP proceeds to generate NADPH?	K2	CO2
		(OR)		
	12.b.	Outline about the glyoxalate cycle in the formation of succinate.		
3	13.a.	Perform protoplast fusion and give its importance in strain improvement.	K2	CO3
		(OR)		
	13.b.	Infer about the heteropolysaccharides synthesis in microbes.		
4	14.a.	Extend a note on biosynthesis of straight chain fatty acids.	K2	CO4
		(OR)		
	14.b.	Elaborate on biosynthesis of phospholipids.		
5	15.a.	Summarize the biosynthetic pathway of Glutamate.	K3	CO5
		(OR)		
	15.b.	Mention the steps involved in tyrosine biosynthesis.		

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 about the reductive dicarboxylic acid cycle.	K2	CO1
2	17	Illustrate on pathway that involves fructose metabolism.	K3	CO2
3	18	List out and explain the various types of bioreactors.	K2	CO3
4	19	Write in detail about the synthesis of unsaturated fatty acids.	K2	CO4
5	20	From ribose phosphate how pyrimidine biosynthesis performs?	K2	CO5

Z-Z-Z

END