

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2024
(Second Semester)

Branch - APPLIED MICROBIOLOGY

FERMENTATION AND BIOPROCESS TECHNOLOGY

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	Which of the following characteristics of strain? a) Rapid growth b) Genetically stability c) No-toxicity d) All of these	K1	CO1
	2	Preservation by liquid nitrogen is called as a) Cryopreservation b) Lyophilization c) Freeze drying d) Desiccation	K2	CO1
2	3	The small scale bioreactor have volume of a) 5-10 liters b) 10-20 liters c) 1-10 liters d) 1-20 liters	K1	CO2
	4	In world War II, the fermentation was used for the production of a) Alcohol b) Antibiotics c) Wine d) Beer	K2	CO2
3	5	Downstream processing includes a) Separation b) Purification c) Both a & b d) None of the above	K1	CO3
	6	What do you mean by idiophase? a) Production of waste materials b) Production of tropical materials c) Production of primary metabolites d) Production of secondary metabolites	K2	CO3
4	7	Ethanol is commercially produced through a particular species of a) <i>Clostridium</i> b) <i>Trichoderma</i> c) <i>Aspergillus</i> d) <i>Saccharomyces</i>	K1	CO4
	8	The polypeptide chains present in insulin is connected by a) Ionic bond b) Covalent bond c) Disulphide bond d) Hydrophobic bond	K2	CO4
5	9	Amino acids are mostly synthesized from a) Fatty acids b) Mineral salts c) α -ketoglutaric acid d) Volatile acids	K1	CO5
	10	The enzyme commission (EC) number of α -amylase is a) 3.2.1.2 b) 3.2.1.3 c) 3.2.1.1 d) 3.2.1.4	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.	Explain the proper methods employed for preservation of industrially important microbes.	K3	CO1
	(OR)			
	11.b.	Illustrate the importance of antifoaming agents in fermentation.	K3	
2	12.a.	List out the factors involved in fermentor design.	K4	CO2
	(OR)			
	12.b.	Define and describe the Reynolds's number and power number.	K4	
3	13.a.	Differentiate intracellular and extracellular products recovery.	K3	CO3
	(OR)			
	13.b.	How would solvent extraction important in product recovery?	K4	
4	14.a.	Construct stepwise flow chart for the production of acetic acid production.	K3	CO4
	(OR)			
	14.b.	Explain the process of microbial transformation of steroid compounds.	K5	
5	15.a.	What is immobilization? Discuss various methods of enzyme immobilization.	K3	CO5
	(OR)			
	15.b.	Give an one page writeup on ISO certification on your view.	K5	

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	Give an elaborate note on strain improvement methods with suitable examples.	K4	CO1
2	17	Describe components, working principle and applications of photobioreactor.	K4	CO2
3	18	Discuss the methods involved in disintegration of microbes during product recovery. Add a note on each one limitations.	K4	CO3
4	19	Elaborate the steps in industrial production of alcoholic beverages.	K5	CO4
5	20	Design a work flow for the industrial production and application of Vitamin B ₁₂ .	K5	CO5