

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

**MSc DEGREE EXAMINATION MAY2024  
(Second Semester)**

**Branch- APPLIED MICROBIOLOGY**

**ENVIRONMENTAL AND AGRICULTURAL MICROBIOLOGY**

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	How many microbial cells can be found in 1g of rumen content? (a) 100 (b) 1000 (c) up to 1 million (d) up to $1 \times 10^{13}$	K1	CO1
	2	The association which involves the exchange of nutrients between two species is called as (a) Mutualism (b) Syntrophism (c) Antagonism (d) Commensalism	K2	CO1
2	3	Which of the following is an airborne disease? (a) Measels (b) Typhoid (c) Pink eye (d) All of these	K1	CO2
	4	Which of the following type of treatment methods are used for municipal and industrial waste water? (a) Main stream (b) Slow rate (c) Overflow (d) Rapid infiltration	K2	CO2
3	5	In which of the following process earthworms decompose biodegradable solid waste? (a) Composting (b) Landfills (c) Shredding (d) Vermicomposting	K1	CO3
	6	What is approximate temperature in pyrolysis reactor? (a) 890-1000°C (b) 650-1000°C (c) 550-1000°C (d) 200-1000°C	K2	CO3
4	7	The endomycorrhizas are also called as (a) Harting nets (b) Mat forming mycorrhizae (c) Vesicular arbuscular mycorrhizae (d) Intracellular mycorrhizae	K1	CO4
	8	Red rot of sugarcane is caused by (a) <i>Colletotricum falcatum</i> (b) <i>Xanthomonas citri</i> (c) <i>Alternaria solani</i> (d) <i>Fusarium oxysporum</i>	K2	CO4
5	9	Leghaemoglobin takes part in (a) Energy release (b) Stimulating growth of Rhizobium (c) Protecting nitrogenase (d) N <sub>2</sub> absorption	K1	CO5
	10	A biocontrol agent against plant diseases. (a) <i>Trichoderma</i> (b) <i>Glomus</i> (c) <i>Bacillus thuringiensis</i> (d) Baculovirus	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.	Distinguish between Amensalism and Commensalism.	K3	CO1
	(OR)			
	11.b.	Elaborate on the role of root exudates in rhizosphere interactions.		
2	12.a.	Enumerate the different methods of air sanitation.	K3	CO2
	(OR)			
	12.b.	Write about wastewater treatment plants.		
3	13.a.	What is pyrolysis and how would you recommend this method for disposal of organic solid waste.	K4	CO3
	(OR)			
	13.b.	Briefly explain the biomagnification.		
4	14.a.	Comment on mycorrhizae and its types.	K4	CO4
	(OR)			
	14.b.	Explain the principles and methods of plant diseases management.		
5	15.a.	Briefly explain the production of biogas.	K4	CO5
	(OR)			
	15.b.	What is biofertilizer? Justify in what sense are they better than chemical fertilizer.		

**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	List out the negative interaction among microorganisms and explain each in detail with suitable examples.	K4	CO1
2	17	Explain about microbial assessment of air and water quality.	K4	CO2
3	18	What is the role of earth worm in solid waste management? Add note on phytoremediation.	K4	CO3
4	19	Describe the microbial transformation of sulphur and phosphorous in soil.	K5	CO4
5	20	Narrate the Azolla as a biofertilizer.	K5	CO5