22ESP314N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2025
(Third Semester)

Branch - **ENVIRONMENTAL SCIENCE**

INDUSTRIAL PROCESS AND ENVIRONMENTAL SAFETY

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 industry is known for producing large amounts of organic waste? a) Dairy b) Sugar c) Textile d) Cement	K1	CO1
	2	Which industry is typically classified under the "Red" category? a) Food processing b) Textile c) Sugar d) Cement	K2	CO1
2	3	What is the primary raw material used in pulp and paper mills? a) Wood b) Cotton c) Polyester d) Nylon	K1	CO2
	4	What is the main pollutant present in tannery wastewater? a) Chromium b) Lead c) Mercury d) Arsenic	K2	CO1
3	5	Which industry uses the electroplating process? a) Pharmaceutical b) Food processing c) Cement d) Electroplating industry	K1	CO2
	6	What is the main pollutant present in thermal power station emissions? a) Particulate matter b) Sulfur dioxide c) Nitrogen oxides d) Carbon monoxide	K2	CO2
4	7	What is the purpose of conducting a waste audit? a) To identify waste generation sources b) To reduce waste volume and strength c) To modify materials and processes d) To recycle and reuse waste	K1	CO3
	8	What is the concept of zero liquid discharge (ZLD)? a) Reusing wastewater b) Discharging treated wastewater c) Eliminating liquid waste d) Reducing water consumption	K2	CO3
5	9	Which category of industries requires consent and authorization from TNPCB? a) Red category b) Orange category c) Green category d) White category	K1	CO3
	10	Which type of waste requires biomedical waste authorization? a) Plastic waste b) Hazardous waste c) Biomedical waste d) Non-hazardous waste	K2	CO2

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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.	Describe the manufacturing process of the dairy industry and identify potential sources of pollution.	K3	CO2
		(OR)		
	11.b.	Describe the characteristics of industrial wastes and their effects on the environment.		
2	12.a.	Compare and contrast the wastewater treatment methods used in textile and synthetic fiber industries.	K4	CO4
		(OR)		
	12.b.	Discuss the challenges and opportunities associated with implementing sustainable wastewater treatment practices in the fertilizer industry.		
3	13.a.	Describe the cement manufacturing process. What are the sources and effects of waste generated during this process?	K5	CO5
		(OR)		
	13.b.	Compare and contrast the waste management practices in the pharmaceutical and food processing industries.		
4	14.a.	Describe the waste management approach in cleaner production.	K4	CO4
		(OR)		
	14.b.	Explain the concept of zero liquid discharge (ZLD) and its applications.		
5	15.a.	Explain the importance of biomedical waste authorization for industries generating biomedical waste.	K5	CO5
		(OR)		
	15.b.	Compare and contrast the Consent to Operate (CTO) and Consent to Establish (CTE) processes.		

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	Evaluate the environmental sustainability of the sugar industry's manufacturing process. Identify areas for improvement and propose potential solutions.	K5	CO5
2	17	Compare the environmental regulations and standards for wastewater discharge in the textile and synthetic fiber industries. Evaluate the effectiveness of these regulations in reducing pollution.	K4	CO4
3	18	Analyze the environmental impacts of the cement industry. Evaluate the effectiveness of current waste management practices in mitigating these impacts.	K5	CO4
4	19	Evaluate the effectiveness of waste audit in reducing waste generation and improving resource efficiency.	K5	CO5
5	20	Analyze the importance of consent and authorization for industries in Tamil Nadu. Evaluate the role of TNPCB in regulating industrial activities.	K6	CO5

Z-Z-Z END