

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
MSc DEGREE EXAMINATION MAY 2025
(First Semester)

Branch - ENVIRONMENTAL SCIENCE

ENERGY RESOURCES AND CONSERVATION

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 is/are the regulatory functions of the forests? (a) Storage and release of gases (b) Global climate and Temperature (c) Control soil erosion, droughts and floods (d) Both (a) and (b)	K1	CO1
	2	_____ mineral resource is commonly extracted from oceans ores. (a) Manganese (b) Bauxite (c) Limestone (d) Tin	K2	CO1
2	3	Which is the main cause of the global energy crisis? (a) Overproduction of renewable energy (b) Rapid industrialization and overconsumption of fossil fuels (c) Decreasing population (d) Excessive nuclear energy production	K1	CO2
	4	The second law thermodynamics deals with the (a) Transfer of heat (b) Conservation of energy (c) Temperature and Pressure difference (d) entropy of a system becomes constant as the temperature approaches absolute zero	K2	CO2
3	5	The function of a solar collector is to convert..... (a) Solar Energy into Electricity (b) Solar Energy radiation (c) Solar Energy thermal energy (d) Solar Energy mechanical energy	K1	CO3
	6	Energy generated due to alternating rise and fall of water level is called as (a) Hydropower (b) Ocean Thermal Energy (c) Tidal Energy (d) Wind energy	K2	CO3
4	7	Which of the following is/are benefits of energy audit? (i) Identify the areas where energy is wasted (ii) Identify the safety concerns (iii) Recommend energy efficient improvements (iv) Preparing energy report (a) (i), only (b) (i) and (ii) (c) (i), (ii) & (iii) (d) (i), (ii), (iii) & (iv)	K2	CO4
	8	Consider the following statements regarding "Green Rating for Integrated Habitat Assessment (GRIHA)" 1. It evaluates the environmental performance of a building holistically over its entire life cycle, thereby providing a definitive standard for what constitutes a 'green building' 2. Attempts to minimize a building's resource consumption, waste generation, and overall ecological impact to within certain nationally acceptable limits / benchmarks Which of the statements given above is/are correct? (a) 1 only (b) 2 only (c) Both 1 and 2 (d) None	K1	CO4
5	9	The Energy Conservation Building Code (ECBC) is applicable to (a) All residential buildings (b) All commercial buildings that have a connected load of 10 kW or lesser, or a contract demand of 12 kVA or lesser (c) only private buildings (d) All types of new buildings that have a connected load of 100 kW or greater, or a contract demand of 120 kVA or greater	K1	CO5

Cont...

5	10	With reference to International Solar Alliance (ISA) consider the following statements: 1. ISA focuses on harnessing solar energy to generate electricity, reducing the dependence on fossil fuels 2. ISA gives an opportunity to India to lead in the fight against climate change 3. India and France launched this initiative (a) 1 only (b) 2 only (c) 1 & 2 (d) 1, 2 & 3	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.	Examine environmental implications of mineral extraction and the importance of recycling mineral resources.	K4	CO1
		(OR)		
	11.b.	Compare the significance of social forestry, agro-forestry, and urban forestry as tools for forest management.		
2	12.a.	Conclude and analyze the First and Second Laws of Thermodynamics and their relevance to energy systems.	K4	CO2
		(OR)		
	12.b.	Analyze the energy consumption pattern in India, its key sectors, and challenges in meeting energy demands.		
3	13.a.	Explain the classification and physico-chemical characteristics of coal. Discuss the environmental problems associated with coal usage.	K5	CO3
		(OR)		
	13.b.	Explain the methods of producing bioenergy from biomass and Discuss the processes of methane and alcoholic fermentation.		
4	14.a.	Explain the role of energy managers in industries with respect to energy monitoring, auditing, and targeting.	K6	CO4
		(OR)		
	14.b.	Discuss the Eco housing contribution to the sustainable development.		
5	15.a.	Assess the Bachat Lamp Yojana (BLY) contribution to energy efficiency at the consumer level.	K5	CO5
		(OR)		
	15.b.	Explain the key features of the Energy Efficiency Financing Platform (EEFP), and how does it promote energy-efficient projects?		

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	Analyze the concept of Integrated Water Resource Management (IWRM) and how it addresses the overutilization of surface and groundwater resources.	K4	CO1
2	17	Examine the impacts of energy consumption on the environment and discuss possible solutions for minimizing environmental damage.	K4	CO2
3	18	Explain the working principle of solar photovoltaic systems and discuss the potential of solar energy as an alternative energy source.	K5	CO3
4	19	Discuss the need for energy conservation in public and private buildings. What energy conservation opportunities exist in buildings, and how do rating systems like LEEDS, GRIHA, and IGBC promote energy efficiency?	K6	CO4
5	20	Evaluate the key features and importance of the Energy Conservation Building Code (ECBC) in India's energy efficiency strategy.	K5	CO5