

PSG COLLEGE OF ARTS AND SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Branch – ENVIRONMENTAL SCIENCE

ESSENTIALS OF ENERGY AND ENVIRONMENT/ ENERGY RESOURCES AND CONSERVATION

Time: Three Hours

Maximum: 75 Marks

SECTION – A (10 Marks)

Answer **ALL** Questions

ALL Questions carry **EQUAL** marks

(10 x 1 = 10)

1	Which region in Jammu and Kashmir has the largest lithium reserve discovered in India? a) Samba b) Reasi c) Kathua d) Udhampur	K2	CO1
2	Which type of coal has the highest purity? a) Bituminous b) Lignite c) Anthracite d) Pea	K2	CO1
3	Convection is the transfer of heat through a) Fluids b) Solids c) Vacuums d) Gases	K2	CO2
4	Which of the following are considered path functions in thermodynamics? a) Heat and work b) Enthalpy and entropy c) Internal energy and volume d) Pressure and temperature	K2	CO2
5	What is the main constituent of natural gas? a) Butane b) Propane c) Methane d) Ethane	K1	CO3
6	Which of the following is considered the most scientifically sound method for the long-term disposal of high-level nuclear waste? a) Storing it at the nuclear power plant for an indefinite period b) Burying it deep underground in stable geological formations c) Burying it under the seabed d) Launching it into space	K1	CO3
7	What is a key objective of green buildings, as evaluated by GRIHA? a) To increase resource consumption b) To maximize waste generation c) To use non-renewable energy sources exclusively d) To reduce energy and water consumption	K1	CO4
8	What is a characteristic of a primary cell? a) It generates high voltage b) It cannot be recharged c) It can be recharged d) It uses two different electrodes	K1	CO4
9	What are the tradable instruments issued under the PAT scheme? a) Energy Savings Certificates (ESCs) b) Certified Emission Reductions (CERs) c) Carbon Credits d) Renewable Energy Certificates (RECs)	K2	CO5
10	In ancient Indian architecture, what was the purpose of incorporating elements like courtyards and jalis (latticed screens)? a) To capture rainwater b) To regulate airflow and provide natural cooling c) To protect against invaders d) To increase decorative appeal	K2	CO5

Cont...

SECTION – B (35 Marks)

Answer ALL Questions

ALL Questions carry EQUAL marks

(5 x 7 = 35)

11	a	Explore the various mineral resources in Tamil Nadu with examples.	K3	CO1
		OR		
12	b	How do forest resources play a vital role in the economy of India?	K4	CO2
	a	Explain the first and second laws of thermodynamics with examples.		
13		OR	K4	CO3
	b	Analyze the energy consumption pattern in agricultural sector.		
14	a	Classify the different types of coal and their characteristic features.	K5	CO4
		OR		
15	b	Compare the different agricultural feedstock and their biomass energy potentials in India.		
	a	Evaluate the objectives and benefits of energy audit.	K5	CO5
		OR		
	b	How fuel cells enable energy storage? Explain.		
16	a	Explain the key objectives and functions of Energy Efficiency Financing Platform (EEFP).	K5	CO5
		OR		
17	b	Appraise how the objectives of Lifestyle for Environment Initiative (Mission LiFE) to attain sustainable development.		

SECTION – C (30 Marks)

Answer any THREE Questions

ALL Questions carry EQUAL marks

(3 x 10 = 30)

16	Discuss the role of public participation in conservation of natural resources.	K3	CO1
17	Critically evaluate the global energy demand in detail.	K5	CO2
18	Is small modular reactors (SMR) are a necessity for meeting energy demand? – Justify.	K5	CO3
19	Examine the BEE and GRIHA rating systems in green buildings.	K4	CO4
20	Illustrate the salient features of International Solar Alliance (ISA).	K4	CO5