

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2025
(Third Semester)

Branch- ENVIRONMENTAL SCIENCE

REMOTE SENSING AND GIS IN ENVIRONMENTAL MANAGEMENT

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	What is included in Geospatial Techniques? a) Map projection methods b) Introduction to Maps and Types of Maps c) Climate change analysis d) Oceanography	K1	CO1
	2	What is the primary purpose of a Topographical Map? a) To show political boundaries b) mark climate zones c) to represent elevations and landforms d) to show population density	K2	CO2
2	3	What is an "atmospheric window" in remote sensing? a) A specific range of electromagnetic wavelengths that pass through the atmosphere with minimal absorption b) A type of satellite used for weather monitoring c) A software used to analyze remote sensing data d) A method to measure ocean depth	K1	CO2
	4	What does the spectral reflectance curve represent? a) The relationship between frequency and time in remote sensing b) The variation of reflectance of different surfaces across multiple wavelengths c) The movement of tectonic plates in remote sensing data d) The altitude of a satellite in orbit	K2	CO3
3	5	Which of the following is the main difference between a map and an aerial photograph? a) A map is a direct image, while an aerial photograph is a symbolic representation. b) Aerial photographs capture real-time images, while maps are interpreted representations. c) Maps have distortions due to terrain, whereas aerial photographs do not. d) Aerial photographs always have uniform scale, unlike maps.	K1	CO1
	6	What is the main characteristic of an active remote sensing system? a) It relies on natural sunlight as the energy source. b) It emits its own energy and records the reflected signal. c) It only works in the visible spectrum. d) It cannot operate during night time.	K2	CO1
4	7	Which of the following represents the basic variables used in GIS? a) Pixels, features, tables b) Points, lines, polygons c) Vectors, layers, images d) Tables, graphs, coordinates	K1	CO1
	8	What is the purpose of NDVI (Normalized Difference Vegetation Index) in GIS? a) To measure soil moisture b) To assess vegetation health c) To map roads and infrastructure d) To calculate elevation data	K2	CO2

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5	9	Which of the following is a primary application of Remote Sensing and GIS in coastal management? a) Predicting weather patterns b) Mapping vegetation types c) Monitoring shoreline changes and erosion d) Analyzing land use patterns in urban areas	K1	CO3
	10	In watershed management, how can Remote Sensing and GIS technologies be used? a) To determine the exact amount of rainfall in a specific area b) To map water quality across large regions c) To assess soil health using satellite images d) To identify areas vulnerable to soil erosion and flooding	K2	CO2

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 Geospatial Techniques and their significance in mapping.	K2	CO1
		(OR)		
	11.b.	Discuss the different types of maps and their uses.		
2	12.a.	What are atmospheric windows in remote sensing? Discuss their importance.	K3	CO2
		(OR)		
	12.b.	Explain the concept of the spectral reflectance curve and its applications in remote sensing.		
3	13.a.	Explain the basic geometry of aerial photography.	K2	CO3
		(OR)		
	13.b.	What are the differences between central and orthographic projections in aerial photography?		
4	14.a.	Describe the applications of Remote Sensing and its integration with GIS.	K2	CO2
		(OR)		
	14.b.	Discuss the role of Coordinate Systems and Projections in GIS.		
5	15.a.	Explain the role of Remote Sensing and GIS in Coastal Management.	K2	CO2
		(OR)		
	15.b.	Discuss how Remote Sensing and GIS are applied in Watershed Management.		

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	Discuss the components of Geospatial Techniques and their applications in various fields.	K6	CO3
2	17	Explain the concept of Electromagnetic Radiation (EMR) and discuss its significance in remote sensing.	K4	CO1
3	18	Discuss the basics of aerial photography, including its geometry, types of aerial photographs, and the difference between a map and an aerial photograph.	K4	CO2
4	19	Discuss the concept of GIS, its components, and its importance in spatial data analysis.	K5	CO3
5	20	Elaborate on the application of Remote Sensing and GIS in Hazards and Disaster Management.	K4	CO1

Z-Z-Z END