22ESP208N/ 97ESP15

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2025
(Second Semester)

Branch - **ENVIRONMENTAL SCIENCE**

SOIL POLLUTION AND MANAGEMENT/ SOIL POLLUTION AND SOLID WASTE 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	Igneous rocks are formed due to (a) when magma is trapped deep inside the Earth (b) when magma exits and cools above the Earth's surface (c) Both a and b (d) None	K2	CO1
	2	Which one of the following is the most abundant element in bulk earth by weight? (a) Fe (b) Mg (c) Si (d) S	K1	CO1
2	3	Indian standard classification of soil is based on (a) Indian system (b) MIT system (c) PRA System (d) International soil classification	K1	CO2
	4	Downward movement of dissolved contaminants in the soil profile by percolating precipitation is called (a) infiltration (b) percolation (c) leaching (d) erosion	K2	CO2
3	5	The soil sample that is 60% clay, 30% silt and 10% sand has _____ structure. (a) Clay loam (b) Sandy clay loam (c) Silt (d) Sandy	K1	CO3
	6	Decomposed material found as large organic molecules attached to soil particles is called as (a) Particulate organic carbon (b) Humus organic carbon (c) Resistant organic carbon (d) Soluble organic carbon	K2	CO3
4	7	Which of the following methods is commonly used for total nutrient analysis in soil? (a) DTPA Extraction (b) Acid digestion (c) Sedimentation (d) Elution	K1	CO4
	8	Organic matter (%) calculated from total organic carbon by multiplying the factor that is (a) 17.24 (b) 7.24 (c) 1.724 (d) 0.724	K2	CO4
5	9	Mining causes degradation of land because (i) It removes plantation (ii) It leaves pollutants and cause water pollution (iii) It increase soil erosion (iv) It increase the afforestation (a) (i) only (b) (i) & (ii) (c) (i), (ii) & (iii) (d) (i), (ii), (iii) & (iv)	K1	CO5
	10	Which one of the following is not correct for bioremediation of pollutants by microorganisms? (a) Organic pollutants provide a source of carbon (b) Microbe can produced oxidized or reduced species to precipitate or degrade the pollutants (c) Microbes act on pollutants by aerobic and anaerobic degradation (d) Microbes did not get any net energy from degradation	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.	Differentiate the formation of igneous and metamorphic rocks.	K4	CO1
		(OR)		
	11.b.	Describe the geochemical classification of elements and their distribution in the Earth's layers.		
2	12.a.	Explain the process of weathering and its significance in soil formation.	K4	CO2
		(OR)		
	12.b.	Analyze how the fertilizer management helps to control soil pollution.		
3	13.a.	'Soil texture plays important role in agriculture' Justify the statement with an example.	K5	CO3
		(OR)		
	13.b.	Explain the significance of soil organic matter (SOM) and its interactions with soil components.		
4	14.a.	Conclude the methods used for total nutrient analysis in soils, focusing on acid digestion.	K5	CO4
		(OR)		
	14.b.	Explain the principle and methodology for determination of organic matter, and its significance in soil quality assessment.		
5	15.a.	Discuss the soil resistance and resilience in an ecosystem and its importance for agriculture.	K6	CO5
		(OR)		
	15.b.	Elaborates the microbial soil remediation methods for organic pollutants.		

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	Compare the primary geochemical differentiation and formation of core, mantle, crust, atmosphere and hydrosphere.	K4	CO1
2	17	Explain the processes of weathering and the factors that influence soil formation, including parent materials and climate.	K4	CO2
3	18	Discuss the significance of soil colloids in soil fertility and their role in nutrient exchange.	K4	CO3
4	19	Explain the purpose of soil analysis and describe the processes involved in the collection, preparation, and preservation of soil samples.	K5	CO4
5	20	Discuss the types and processes of soil erosion and their impacts on soil productivity.	K5	CO5

Z-Z-Z END