

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2026*****Second Semester******Environmental Engineering*****PEVE2410- GEO ENVIRONMENTAL ENGINEERING*****Regulations - 2024******Duration: 3 Hrs.******Maximum: 100 Marks******PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)***

<i>Q.No</i>	<i>Questions</i>	<i>BTL</i>	<i>CO</i>	<i>Marks</i>
1.	Differentiate between inorganic and organic geochemistry.	L2	1	2
2.	Mention two effects of organic contaminants on soil.	L2	1	2
3.	Enlist any two chemical mass transfer processes.	L1	2	2
4.	Mention two causes of groundwater contamination.	L2	2	2
5.	List two sources of subsurface contamination.	L1	3	2
6.	State any two limitations of groundwater pumping systems.	L2	3	2
7.	Enlist the applications of electrokinetic remediation.	L1	4	2
8.	State two thermal remediation methods.	L1	4	2
9.	What is in-situ air sparging?	L1	5	2
10.	Mention the disadvantages of permeable reactive barriers.	L1	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11. a	i Discuss different types of geo-environmental problems with suitable examples.	L2	1	8
	ii Explain the role of soil in geo-environmental applications.	L2	1	8
Or				
b	Discuss about the potential geo-environmental problems, identifying the contaminants involved and their effects on soil and groundwater when a textile factory discharges dyes and salts into nearby land.	L2	1	16
12. a	i Explain in detail the various contaminant retention and transport mechanisms in soil	L2	2	8
	ii Describe the sources, effects, and modeling of groundwater contamination.	L2	2	8

Or

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| b | i | Discuss the mechanisms controlling the movement and transformation of contaminants in soil and groundwater. | L2 | 2 | 8 | |
| | ii | What are in-situ barriers? Explain their types and applications. | L2 | 2 | 8 | |
| 13. | a | i | Explain in detail the steps involved in risk assessment of contaminated sites. How are remedial strategies formulated? | L2 | 3 | 8 |
| | | ii | Write the selection criteria of soil for a liner system. | L2 | 3 | 8 |

Or

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| b | i | Discuss sources and types of subsurface contamination with suitable examples. | L2 | 3 | 8 | |
| | ii | Explain vertical and bottom barriers for waste containment with neat sketches, | L2 | 3 | 8 | |
| 14. | a | i | Discuss soil washing and its advantages in remediation. | L2 | 4 | 8 |
| | | ii | Explain vitrification with process steps, advantages, and limitations. | L2 | 4 | 8 |

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| b | i | Describe stabilization and solidification techniques with examples. | L2 | 4 | 8 |
| | ii | Write detailed notes on bioremediation and phytoremediation of soils. | L2 | 4 | 8 |
| 15. | a | Explain the pump and treat method for groundwater remediation with neat sketches. | L2 | 5 | 16 |

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| b | Write in detail about bioremediation methods used for groundwater remediation. | L2 | 5 | 16 |
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