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Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)



B. Tech (Eighth Semester - Regular) Examinations, April - 2025

21BCVPE48021–Environmental Geo-techniques

(Civil Engineering)

Time: 3 hrs

Maximum: 70 Marks

Answer ALL questions
(The figures in the right hand margin indicate marks)

PART – A

(2 x 5 = 10 Marks)

Q.1. Answer **ALL** questions

	CO #	Blooms Level
a. What are the common sources of soil contamination?	CO1	K1
b. Mention two categories of solid waste.	CO2	K1
c. What is bioremediation?	CO3	K1
d. Mention any two functions of geosynthetics.	CO4	K1
e. What is the difference between in-situ and ex-situ remediation?	CO3	K2

PART – B

(15 x 4 = 60 Marks)

Answer **all** the questions

	Marks	CO #	Blooms Level
2. a. Discuss the various sources of contamination in soil and groundwater.	8	CO1	K2
b. How do physico-chemical properties of soil influence contamination?	7	CO1	K3
(OR)			
c. Explain the use of geophysical methods in site investigations.	8	CO1	K3
d. Describe sampling techniques used during site investigation.	7	CO1	K2
3.a. Explain the role of landfills in waste management.	8	CO2	K2
b. Discuss waste management strategies suitable for urban areas.	7	CO2	K4
(OR)			
c. What are the geotechnical considerations in landfill design?	8	CO2	K4
d. Discuss regulations and policies governing hazardous waste.	7	CO2	K2
4.a. Discuss the principles of advection, dispersion, and diffusion.	8	CO3	K2
b. Compare bioremediation and phytoremediation.	7	CO3	K4
(OR)			
c. What is the role of adsorption in transport models?	8	CO3	K4
d. Describe any two software tools used for simulating contaminant transport.	7	CO3	K3
5.a. Describe remediation strategies for NAPL (Non-Aqueous Phase Liquids) sites.	8	CO4	K3
b. Compare the use of geotextiles and geomembranes in waste containment.	7	CO4	K4
(OR)			
c. How is electrokinetic remediation implemented in contaminated sites?	8	CO4	K3
d. Explain the design of barrier systems for containment of contaminants.	7	CO4	K5

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