

Total Pages—4

(Set-R₁)

B.Tech - 8th
Environmental Geotechnique

Full Marks : 70

Time : 3 hours

Answer any six questions including Q. No. 1.

The figures in the right-hand margin indicate marks

1. Explain the following questions : 2 × 10
- (a) How would you define a hazardous waste ?
 - (b) What is the use of pressure Nacuuum lysimeter in mining industry ?
 - (c) Draw a conceptual geochemical model of zones in a contaminant pheme..
 - (d) Write down the conservation of mass equation for transient transport of a chemical species through saturated materials.

(Turn Over)

(2)

- (e) What is the difference between spigot disposal and single point disposal for mine tailing ?
 - (f) Differentiate between rigid and flexible landfill liners.
 - (g) What is Geosynthetic clay liner ? Show with diagrams.
 - (h) How oil contamination is going to change the geotechnical properties of soil ?
 - (i) What are the factors affecting tailing characteristics ?
 - (j) What are the waste characterization steps ?
2. (a) Explain about the sequential batch-contact test to get the attenuation capacity of chemical constituents in natural geological materials. 5
- (b) What is enhanced bioremediation ? What are the factors that may limit the applicability/ effectiveness of the process. 5

(3)

3. (a) With the help of net sketch, explain different components of a modern municipal solid waste Landfill's environmental containment system. 5
- (b) What is the role of geosynthetic materials in landfill design? 5
4. (a) What are the factors affecting health of ash dyke? What are the preventive measures? 5
- (b) Discuss soil vapour extraction as a remediation approach for volatile contaminants in the Vadose zone. 5
5. (a) Write a short note on different deposition methods of tailings. 5
- (b) What are the different types of mine. Waste and how are these waste materials managed at the mine sites? 5
6. (a) What are the sources of subsurface contamination and how risk assessment is done? 5

(4)

- (b) What is EIA ? What information you should expect in an EIA report for construction of an water treatment plant is an industrial area ? 5
7. (a) What is the principle of soil washing ? What are its advantages and limitations ? 5
- (b) Prepare a flowchart for waste characterization of volatile organic Emissions ? 5
8. (a) How monitoring is done for the slope stability of landfills ? 5
- (b) What are the different criteria for selection of waste disposal sites ? 5
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