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Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

Seventh Semester B.Tech Degree Examination (Regular and Supplementary), December 2020



**Course Code: CE465**

**Course Name: GEO-ENVIRONMENTAL ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer any two full questions, each carries 15 marks.*

Marks

- |   |   |     |
|---|---|-----|
| 1 | a) Explain any three waste disposal facilities.   | (6) |
|   | b) Explain any two geotechnical uses of mine waste.                                       | (5) |
|   | c) List the different types of waste.   | (4) |
| 2 | a) Explain the Site Sensitivity Index method of ranking landfill sites.                   | (6) |
|   | b) What are the key elements of a waste management system?                                | (5) |
|   | c) What are the environmental impacts of waste dump?                                      | (4) |
| 3 | a) Explain the role of soil in geoenvironmental applications.                             | (6) |
|   | b) What are the data to be collected for selecting landfill sites as per MoEF guidelines? | (5) |
|   | c) Explain the physical characterisation of Municipal solid waste.                        | (4) |

**PART B**

*Answer any two full questions, each carries 15 marks.*

- |   |   |      |
|---|---|------|
| 4 | a) Explain the functions of landfill components with a neat sketch.                           | (10) |
|   | b) Explain the leachate collection and drainage system provided in landfills.                 | (5)  |
| 5 | a) Compare any six major characteristics of Compacted clay liner and Geosynthetic clay liner. | (6)  |
|   | b) Explain the phased operation in the construction of landfill.                              | (5)  |
|   | c) After closure of the landfill, how leachate volume is estimated?                           | (4)  |
| 6 | a) Explain the active systems method of collection and removal of landfill gas.               | (6)  |
|   | b) What are the functional requirements of liner system in landfill?                          | (5)  |
|   | c) Explain the importance of closure and post closure monitoring system of landfills.         | (4)  |

**PART C**

*Answer any two full questions, each carries 20 marks.*

- 7 a) Explain the steps involved in the investigation of a contaminated site. (10)  
b) Explain any two Thermal remediation methods. (5)  
c) What is the effect of dielectric constant of pore fluid in the Liquid limit of soil? (5)
- 8 a) Explain the phytoremediation method for treating contaminated land. (10)  
b) What are the changes in compressibility characteristics of soil due to change in environment? (5)  
c) What is Pump and Treat method? (5)
- 9 a) What are the objectives of soil sampling in contaminated site investigation? (10)  
Explain any two sampling methods.  
b) What is Electrokinetic remediation of contaminated sites? (5)  
c) Explain Bioventing method. (5)

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