

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

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

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
SEVENTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

**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 the soil- water-environmental interaction on geotechnical problems. | 8 |
|   | b) What are the geotechnical properties of solid waste?                        | 7 |
| 2 | a) With neat sketch, write the multiphase behaviour of soil.                   | 3 |
|   | b) Explain about the environmental impacts of waste dumping.                   | 5 |
|   | c) List out and explain various waste management strategies.                   | 7 |
| 3 | a) What do you mean by Flyash? How will you obtain it?                         | 5 |
|   | b) List out the geotechnical applications of Flyash.                           | 5 |
|   | c) Write a short note on municipal solid waste.                                | 5 |

**PART B**

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

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|---|--|---|
| 4 | a) What are the major components of a landfill? Explain functions of each component.           | 8 |
|   | b) How will you evaluate the capacity of a landfill?   | 7 |
| 5 | a) What are the basic functions of cover system?   | 3 |
|   | b) Explain with neat sketches the classification of landfill liners based on type of material. | 6 |
|   | c) What are the various uses of gas collected from landfill?                                   | 6 |
| 6 | a) How can we dispose leachate collected from a landfill?                                      | 8 |
|   | b) What are the different properties of geomembrane?   | 7 |

**PART C**

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

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|---|---|----|
| 7 | a) Write in detail the approach for planning and implementing a successful remediation process. | 6  |
|   | b) Write briefly about bioremediation.  | 10 |

- c) List out different sampling techniques for contaminated soil. 4
- 8 a) What are the advantages and disadvantages of ex-situ and insitu remediation approaches? 5
- b) Explain the different methods of in-situ thermal desorption. 10
- c) Write down the difference between thermal desorption and vitrification. 5
- 9 a) Describe the effects of pollutants in soil on
- (i) Index properties
  - (ii) Volume change behaviour 20
  - (iii) Shear strength
  - (iv) Permeability

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