

**Elective - II : Geotechnical Investigation & Ground Improvement Techniques**

P. Pages : 2

Time : Three Hours



**NKT/KS/17/7536**

Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
  2. Solve Question 1 OR Questions No. 2.
  3. Solve Question 3 OR Questions No. 4.
  4. Solve Question 5 OR Questions No. 6.
  5. Solve Question 7 OR Questions No. 8.
  6. Solve Question 9 OR Questions No. 10.
  7. Solve Question 11 OR Questions No. 12.
  8. Due credit will be given to neatness and adequate dimensions.
  9. Assume suitable data whenever necessary.
  10. Diagrams and chemical equations should be given whenever necessary.
  11. Illustrate your answers whenever necessary with the help of neat sketches.
  12. Use of non programmable calculator is permitted.

1. a) Explain various Requirements of good samplers. 6
- b) Explain Seismic Refraction Method of Exploration with the help of Neat sketch. 7

**OR**

2. a) Chalk out geotechnical Investigation programme for a plot of size 600m x 800m consider depth of Bore hole equal to 25m. 7
- b) Explain various types of samples. Explain method of collection and shipment of samples. 6
3. a) Explain Electrical resistivity method with neat sketch. What are the various limitations of this test? 8
- b) Explain SPT. What are the limitations and correlations in this test? 6

**OR**

4. a) Explain SCPT and DCPT with the help of Neat sketch. 8
- b) What are the various limitation of plate load Test? 6
5. a) What are various Laboratory methods for determining shear strength of soil? Discuss any one. 7
- b) Explain different types of shear failures in shallow foundation. 7

**OR**

6. a) Explain various grouting methods and grout Requirements. 7  
b) Explain procedure of installation of stone column. 7
7. a) Explain Reinforced soil and its Application. 7  
b) Explain Geofoam and Geocell. 6

**OR**

8. a) Explain Geo- Synthetics and their functions in civil Engineering. 7  
b) Explain Geosynthetic encased stone column and cement slurry wall. 6
9. a) Explain design features of diaphragm wall. 8  
b) What are the advantages and limitations of deep soil mixing? 5

**OR**

10. a) Explain construction procedure of diaphragm wall with the help of neat sketch. 7  
b) Explain Procedure of deep soil mixing. 6
11. a) Explain Procedure of ground anchoring and soil Nailing. 7  
b) What are the limitations of Ground Anchoring? 6

**OR**

12. a) Discuss application of diaphragm wall. 7  
b) Explain limitations of soil Nailing 6

\*\*\*\*\*