

B.E. (Civil Engineering) Eighth Semester (C.B.S.)
Elective - III : Advanced Geotechnical Engineering

P. Pages : 2

Time : Three Hours



NIR/KW/18/3624

Max. Marks : 80

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- 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. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Explain different clay minerals and their structural composition. 6
b) Explain CNS technique. 7

OR

2. a) Write a note on free swell indices. 6
b) Explain in brief swelling pressure and swelling potential. 7
3. a) What is meant by Grain Morphology? 6
b) What are effects of size, shape of sand on engineering properties of soil? 7

OR

4. a) Explain in brief effects of Grain Morphology. 7
b) What are the methods of determining Grain Morphological parameters. 6
5. a) Explain well point system in brief. 7
b) Write short note on electro-osmosis. 7

OR

6. a) Explain purpose and various methods of dematerialing. 7
b) Write in brief the flow towards slots from line source. 7
7. a) Write short note on 'Sand Drains'. 7
b) Explain the concept of secondary consolidation phenomenon. 7

OR

8. a) Explain settlement due to consolidation. **7**
b) Write in brief 'Schmertmann's method for determination of Preconsolidation pressure field consolidation curve. **7**
9. a) State the different properties relevant for dynamic loading and explain any one with detail. **6**
b) Explain Stress-Strain behavior of cyclic-ally loaded soil. **7**

OR

10. a) Explain the strength of cyclically loaded soil phenomenon. **6**
b) Describe representation of stress conditions by the Mohr circle. **7**
11. a) Explain the basic mechanism of 'Liquefaction'. **6**
b) What are the factors affecting liquefaction. **7**

OR

12. a) What are the effects of liquefaction. **7**
b) What is liquefaction potential? Explain any two methods for determination of liquefaction potential. **6**
