

Babu Banwar Das -National Institute of Technology & Management, Lucknow
B. Tech Third Year (Fifth Semester) 2016-17
Department of Civil Engineering

Geotechnical Engineering (BCE-301)
Assignment 1 (2016-17)

NOTE-ATTEMPT ALL PARTS

1. Explain the process of soil formation. Differentiate b/w Residual and a Transported soil.
2. Give the functional b/w Wet Unit Weight and Dry Unit weight and prove

$$\gamma_s = \gamma' (1+e)$$
3. What are different kinds of soil structures which can occur in nature? Describe in brief.
4. Establish the following relationship $\bar{V} = \frac{e}{2(1+e)-1}$
5. A 1000cc cone container weighing 946.8kg was used to find out in-situ unit weight of an embankment. The weight of cone container filled with soil was noted to be 3770.6kg. Laboratory tests on the sample indicated a water content of 18.47% and specific gravity of solids of 2.65. Determine bulk unit weight, dry unit weight, void ratio and degree of saturation of the sample.
6. An undisturbed sample of clay brought from the field was noted to have a volume of 18cc and weight of 30.8g. On oven drying, the weight of sample was reduced to 20.2g. The volume of dried sample as obtained by displacement of mercury was 12.5cc. Calculate shrinkage limit and the specific gravity of solids? What is the shrinkage ratio?
7. Write short notes on: (i) Residual soils (ii) Activity of soils (iii) Corrections in hydrometer
8. What is the purpose of soil classification? Describe the salient features of plasticity chart.
9. How will you determine the liquid limit of a soil?
10. Explain Atterberg limit in detail.