

**B.TECH. CIVIL ENGINEERING
(BTCLEVI)**

Term-End Examination

December, 2012

BICE-012 : GEOTECHNICAL ENGINEERING - II

Time : 3 hours

Maximum Marks : 70

*Note : Attempt **any seven** questions. Assume suitable data if any.*

1. What are the basic difference between cohesive soils and cohesionless soils? **10**
2. Describe briefly the field Van Shear test. **10**
3. Explain the importance of initial and final settlement. On what factors the effect of settlement of soil depends? **10**
4. What are the objective of analysis of pile groups? State the principle of group action used for this analysis ? **10**
5. Explain in brief the necessity of conducting the design considerations of well foundations for bridge project. **10**

6. An anchored sheet-pile wall is to support a mass of sandy soil up to a height of 6m with horizontal surface. The anchor ties are 1m below the top. Find the minimum length of the piles for stability. **10**
7. A circular footing of 10 m dia for a column is resting on ground surface. Failure occurred at a load of 1500 T. If the soil is purely clay, find out the cohesive strength of the soil. **10**
8. Find out the safe height of an embankment with the following details : **10**
- Cohesion = 0.8 kg/cm^2
 Unit weight of soil = 1.9 gm/cc
 Taylor's stability number = 0.21
 Factor of safety = 2.0
9. A soil stratum has thickness 450 cm drained at both sides. Calculate the time required for 50% consolidation if $K = 1.04 \times 10^{-7} \text{ cm/sec}$ $e_o = 1.45$ $r_w = 1 \text{ gm/cc}$ $\alpha v = .00028 \text{ cm}^2/\text{gm}$ and time factor $T_v = 0.197$. **10**
10. Write short notes on *any two*. **10**
- (a) Disturbed and undisturbed samples.
 - (b) Effect on water table on bearing capacity.
 - (c) Floating caissons.