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BICE-012

BTCLEVI

Term-End Examination

June, 2012

00115

BICE-012 : GEOTECHNICAL ENGINEERING - II

Time : 3 hours *Maximum Marks : 70*

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

1. What do you understand by active and passive earth pressure ? How will you determine these in clay and sandy soils ? **10**

2. What are **10**
   (a) Seismic refraction method and
   (b) Electrical resistivity method where do you recommend the use of these tests in practice ?

3. Describe any one method of determining bearing capacity of a soil in the field. **10**

4. What are causes of settlement ? And limitations in settlement computation. **10**

5. Distinguish between the shallow and deep foundations. Explain the advantages and limitations of various types of foundations. **10**

6. A square footing 2.5 m by 2.5 m is built in a homogeneous bed of sand of unit weight 20 kN/m^3 and having an angle of shearing resistance of 36°. The depth of the base of footing is 1.5 m below the ground surface. Calculate the safe load that can be carried by a footing with a factor of safety of three against complete shear failure use Terzaghils analysis. Take Nc = 58, Nq = 41.0 and N_γ = 42.0. **10**

7. A wooden pile is driven to refuse by a drop hammer. The hammer weights 750 kg and has a free fall of 1.75 m. If the final set is 1.2 cm, Determine the allowable load. **10**

8. A circular caisson foundations of 2.5 cm dia is to be founded at a depth of 10 m in a deep clay deposit. Calculate the load which can be allowed on the caisson taking a factor of safety 3.0. Unit weight of clay is 1.9 gm/cm^3. **10**

9. Size of mat foundations is 50 m × 20 m. Total building load acting over the foundation may be assumed to be 400 tonnes. Calculate the pressure 10 metres below the centre of the foundation assume m = 1 and n = 2.5 may be taken as 0.2024. **10**

10. Write short notes on ***any two*** : **5x2=10**

    (a) Vibro flotation and sand drains

    (b) RAFT Foundations

    (c) Negative skin Friction
