B.TECH. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

December, 2013

BICE-012 : GEOTECHNICAL ENGINEERING - II

Time : 3 hours   *Maximum Marks : 70*

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

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

2. Compute the intensity of active and passive earth pressure at a depth of 8m in dry cohesion less sand with an angle of internal friction of 30° and unit wt. of 18 kN/m³. **10**

3. Explain the methods of subsurface exploration in detail. **10**

4. A strip footing 1m wide at base is located at a depth of 0.8m below ground level. The properties of foundation soil are : $v = 18$ kN/m³, $C = 30$kN/m² and $\phi = 20°$. Determine the safe bearing capacity, using factor of safety of 3. Use Terzaghis analysis. Take Nc = 11.8, Nq = 3.9, Nv = 1.7. **10**

5. Explain methods of improvement of soil bearing capacity. **10**

6. How will you calculate the initial and final settlement under building loads. **10**

7. Discuss the selection of type of foundation in detail. **10**

8. Explain the construction details and design considerations of the well foundation. **10**

9. A wooden pile is being driven with a drop hammer weighing 20 kN and having a free fall of 1.0 m. The penetration in the last blow is 5mm. Determine the load carrying capacity of the pile according to the Engineering News formula. **10**

10. Write short note on **any two** of the followings : **2x5=10**
    (a) Raft foundation
    (b) Negative skin friction
    (c) Floating foundations

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