ET-501(B)

**B.Tech. Civil (Construction Management) /
B.Tech. Civil (Water Resources Engineering)**

01289

Term-End Examination

December, 2011

ET-501(B) : FOUNDATION ENGINEERING

Time : 3 hours   Maximum Marks : 70

Note : Attempt **any five** questions. All questions carry **equal**
marks. Use of scientific calculator is permitted.

1. (a) Describe the standard penetration test.   7
    (b) Explain the following.   7
         (i)   Wash Boring
         (ii) Auger Boring

2. (a) What is meant by safe bearing capacity of   7
         soil ? On which factors does it depend ?
    (b) A strip footing is 1.5m wide and its base rests 7
         on 1m below G.L. Determine ultimate
         bearing capacity. $\gamma = 20kN/m^3$,
         $c = 100kN/m^2$, $N_c = 61.2$; $N_q = 48.8$ and
         $N\gamma = 67.2$.

3. (a) What type of footing is provided in black   7
         cotton soils ? Discuss its advantages.
    (b) What is a pedestal ? How its behaviour,   7
         under load, may be different from that of a
         long column ?

4. (a) Discuss various causes of settlement in buildings.   7

    (b) What precautions may be taken to reduce differential settlements in buildings ?   7

5. (a) Explain the difference between active and passive earth pressure.   7

    (b) What is a retaining wall ? Draw neat sketches of any two types of retaining wall.   7

6. (a) Discuss important considerations in the design of eccentrically loaded footings.   7

    (b) Write various assumptions of coulomb's theory of earth pressure.   7

7. (a) What is the use of a pile foundation ? What are various types of it ?   7

    (b) A single acting steam Hammer weighing 1200N and falling through 100cm drives a pile to an average penetration of 1cm/blow under the last few blows at the allowable load. What is the safe load as per Engineering News formula ?   7

8. (a) What is well foundation ? Briefly explain the design procedure for a well foundation.   7

    (b) Discuss types of machine foundations in brief.   7