

Government College of Engineering, Aurangabad
(An Autonomous Institute of Government of Maharashtra)
B.E (CIVIL) (REV) Examination
End Semester Examination Dec.2016

CE444: FOUNDATION ENGINEERING

21 NOV 2016

Time: Three Hours

“Verify the course code and check whether you have got the correct question paper”

N.B:-

1. All questions are compulsory
2. Figures to the right indicate full marks
3. Assume suitable data if necessary and state it clearly
4. Use of non-programmable calculator is allowed

Q1. Attempt any Two

- i) Explain open excavation methods of soil exploration
- ii) Explain wash boring method with a neat sketch.
- iii) State the methods of site investigation and sub-soil exploration. (12)

Q2. Attempt any Two

- i) Determine the ultimate bearing capacity of a strip footing 1.2m wide having a depth of 1m. use Terzaghi's equation for general shear failure take $\Phi = 35$ degrees, $Y = 18\text{kN/m}^3$, $C = 15\text{ kN/m}^2$ $N_c = 57.80$, $N_q = 41.40$, $N_y = 38.20$.
- ii) Derive Terzaghi's equation with a neat sketch.
- iii) What is the effect of water table on bearing capacity of soil? discuss different cases with a neat sketch. (12)

Q3. Attempt any Two

- i) Classify piles based on function and material.
- ii) Explain spacing and arrangement of piles.
- iii) Explain with a sketch negative skin friction. (12)

Q4. Attempt any Two

- i) What are the safety measures required for caissons? Discuss
- ii) What are the various forces acting on well? Explain in detail.
- iii) Explain with a neat sketch various types of cofferdam. (12)

Q5. Write short note on: (Any Two)

- i) Foundation techniques
- ii) Shrinkage limit and colloidal content (12)
- iii) Free swell test