Reg. No. : | | | | | | | | | | |

Question Paper Code: 55102

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2020

Fifth Semester

Civil Engineering

15UCE502 – FOUNDATION ENGINEERING

(Regulation 2015)

Duration: One hour Maximum: 30Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Which test is suitable for highly resistant strata? CO1- R

   (a) rotary drilling (b) wash boring

   (c) power operated auger (d) hand operated auger

2. By using undisturbed samples which of the following can be determined CO1- U

   (a) Compressibility (b) Grain size

   (c) Specific gravity (d) Plasticity characteristics

3. For determining the ultimate bearing capacity of soil, the recommended size of a square bearing plate to be used in load plate test should be 30 to 75 cm square with a minimum thickness of CO2-R

   (a) 5 mm (b) 15 mm (c) 20 mm (d) 25mm

4. In shallow foundation if Rw = 1 &Rw' = 0.5 than where the water table lies: CO2- R

   (a) At base of footing (b) Below the footing

   (c) At the ground level (d) Anywhere at the mid

5. Based on the function, piles can be classified into_____ types. CO3- U

   (a) 4 (b) 6 (c) 8 (d) 3

6. Cast-in-situ piles may be classified in to_____classes. CO3- R

   (a) Three (b) Eight (c) Two (d) Four

7. The coefficient of active earth pressure for a loose sand having an angle of internal friction of 30° is CO4- U

   (a) 1/3 (b)3 (c)1 (d) 1/2

8. The pressure exerted by the soil towards the wall, then this resistance is called as CO4- R

(a) Active (b) Passive (c) At rest (d) None of the above

9. The spring stiffness influenced by CO5- U

(a) Type of soil (b) Contact pressure distribution

(c) Embedment of the foundation block (d) All of the above

10. Steining is a component of which of the below type of foundation? CO5- U

(a) Pile (b) Strap (c) Isolated (d) Well

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Explain in detail the geophysical methods of soil exploration with a neat sketch. CO1- U (8)

12. A Circular footing is resting on a stiff saturated clay with qu = 250 kN/m^2. The depth of foundation is 2 m. Determine the diameter of the footing if the column load is 600 kN. Assume a factor of safety of 2.5. The bulk unit weight of soil is 20 kN/m^3. CO2- U (8)

13. A group of 9 piles, 12m long and 250mm in diameter is to be arranged in a square form in clay with an average unconfined compressive strength of 60 KN/m^2 .Work out the centre to centre spacing of the piles for a efficiency factor of 1.Neglect bearing at the tip of the piles. CO3- App (8)

14. Comment on Slope stability Analysis and the methods involved in it. CO4- U (8)

15. Explain in detail about the different methods for construction of well foundation. CO5- U (8)