4. (a) What do you mean by Bearing Capacity of the Soil ? Define and differentiate between Ultimate Bearing Capacity, Net Ultimate Bearing Capacity and Allowable Bearing Pressure of the soil. **5**

(b) Discuss the difference between General and Local Shear Failure. **10**

Unit III

5. (a) Discuss various types of Pile Foundations, with neat sketches. Discuss their classification based on their function as well as based on their materials and composition. **9**

(b) Discuss Negative Skin Friction. **6**

6. (a) What are Caissons ? Discuss its various types. When each of these is required ? **4**

(b) Explain with neat sketches, various components of a well foundation. **6**

(c) Write short note on Tilts and Shift. **5**

No. of Printed Pages : 05 **Roll No. .....**

F-73

B. Tech. EXAMINATION, May 2017

(Sixth Semester)

(B. Scheme) (Main & Re-appear)

CE

CE-306-B

FOUNDATION ENGINEERING

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. There are total eight questions in the question paper. All questions carry equal marks. Missing data, if any, may suitably be assumed and stated,

clearly. Supplement your answer with suitable, proportionately drawn neat sketches, wherever required.

Unit I

1. (a) What do you mean by Soil Exploration ? Why is it done ? Why should be the depth of exploration, no and disposition of pits and borings in different cases ? **8**

(b) Explain one of the Geophysical methods of soil exploration. **7**

2. (a) Discuss Rankine's theory of Active Earth pressure. Derive the expressions for active earth pressure for the following cases of cohesion less soil. Also draw the Active Earth Pressure Diagrams in of the following cases : **8**

(i) Moist Backfill with no surcharge

(ii) Backfill with uniform surcharge.

(b) A retaining wall 4 m high, has a smooth vertical back. The backfill has a horizontal surface in level with the top of the wall. There is uniformly distributed surcharge load of 50 kN/m^2 intensity over the backfill. The unit weight of the backfill is 19 kN/m^3 and angle of internal friction is 28º, c = 0 kN/m^2. If the wall is pushed towards the backfill, compute the total passive pressure on the wall and its point of application. **7**

Unit II

3. Derive the expression for the factors of safety of an Infinite Slope, in the following two cases : **6+9**

(a) Slope is of Cohesion-less soil and it has steady seepage along the slope.

(b) Slope is of Cohesive soil and it is submerged. Also derive expression for Critical depth.

Unit IV

7. (a) Discuss various methods of drainage and dewatering in soil. **10**

(b) Discuss, how you would provide the foundation in swelling soils. **5**

8. Discuss the analogy of Machine Foundation as Mass Spring system with free vibrations. **15**

Unit IV

7. (a) Discuss various methods of drainage and dewatering in soil. **10**

(b) Discuss, how you would provide the foundation in swelling soils. **5**

8. Discuss the analogy of Machine Foundation as Mass Spring system with free vibrations. **15**