Total No. of Questions – [08] Total No. of Printed Pages 02

G.R. No.	

Paper Code: U359-114(ESE)

DECEMBER 2019/ENDSEM

T. Y. B. TECH. (CIVIL) (SEMESTER - I)

COURSE NAME: FOUNDATION ENGINEERING

COURSE CODE: CVUA 31174

(PATTERN 2017)

Time: [**2 Hours**] [Max. Marks: **50**]

(*) Instructions to candidates:

1) **Answer Q.1, Q.2, Q.3, Q.4, Q.5 OR Q.6, Q.7 OR Q.8**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed**
4) **Use suitable data where ever required**

Q.1) a) Describe the standard penetration test with sketch and explain its application in foundation engineering. [6]

OR

b) Describe various types of soil samplers. What is Area ratio? State its significance. [6]

Q.2) a) Enlist the assumptions in Terzaghi's bearing capacity analysis and write the equations to calculate ultimate bearing capacity for circular footing. [6]

OR

b) State and Explain Meyerhof's bearing capacity theory with sketch. [6]

Q.3) a) Explain with a neat sketch spring analogy for demonstrating consolidation process. [6]

OR

b) Define contact pressure. Draw a diagram showing the variation of contact pressure for a rigid footing on clay and sand. [6]

Q.4) a) What is caisson? Enlist its uses. [4]

OR [4]

b) Explain how you decide bearing capacity of single pile by a conventional pile load test.

Q.5) a) Explain 'Constant volume method' to determine swelling pressure of soil with neat sketch [6]

b) What is coffer dam? Where they are used? [4]

c) How will you reduce the swelling pressure of black cotton soil [4]

OR

Q.6) a) Explain 'Free swell test' with neat sketch [6]

b) Write a note on 'stone column'. [4]

c) Discuss any two types of cofferdams with sketch. [4]

Q.7) a) What is reinforced earth wall? Explain with neat sketch. [6]

b) Enlist and explain different types of seismic waves. [4]

c) What do you mean by liquefaction? What are its effects ? [4]

OR

Q.8) a) Explain the use of geosynthetics in [6]

i. Retaining wall

ii. Deep foundation

iii. Embankments on soft soils

b) Explain the use of geosynthetics in bearing capacity improvement. [4]

c) Explain how possibility of Liquefaction can be reduced? [4]