Total No. of Questions – [4] Total No. of Printed Pages - 02

G.R. No.	

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

COURSE NAME: FOUNDATION ENGINEERING

COURSE CODE: CVUA31174

(PATTERN 2017)

Time: [**1 Hour**] [Max. Marks: **30**]

(*) Instructions to candidates:

1) **Answer Q.1 OR Q.2 and Q.3 OR Q.4.**
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) Enlist different type of geophysical methods. Explain seismic method in accordance with. [6]
1. Principle 2. Procedure with sketch 3. Limitations

b) Determine inside clearance, Outside clearance and Area ratio of split spoon sampler with following data [6]
1. Inside and outside diameter of sampling tube are 70 mm and 72 mm respectively
2. Inside and outside diameter of cutting edge are 68 mm and 74 mm respectively.

c) How will you decide the depth of exploration and number of boring in any soil exploration program? [4]

OR

Q.2) a) Enlist different type of geophysical methods. Explain Electrical resistivity in accordance with. [6]
1. Principle 2. Procedure with sketch 3. Limitations

b) Enlist the factors affecting the sample disturbance. Determine the area ratio of shelly tube sampler having inside and outside diameter 111 mm and 114 mm respectively. [6]

c) What are the various correction that should be apply to calculated corrected N value in standard penetration test (Also give empirical relations) [4]

Q.3) a) Discuss modes of shear failure below footing with sketch (Minimum three) [6]

b) Compute the ultimate load that an eccentrically loaded square footing of width 2.1 m with an eccentricity of 0.35 m can carry at a depth of 0.5 m in a soil with γ = 18 kN/m^3, c =9 kN/m^2, Φ= 36^0 Nc =52, Nq=35 and N_γ= 42 (Assume general shear failure) [4]

c) What are the limitation of plate load test (minimum 4 relevant points) [4]

OR

Q.4) a) Explain effect of water table on bearing capacity of soil with neat sketch with respect with following points [6]

1. When water table located above the base of footing
2. When water table located below the footing

b) Determine the ultimate bearing capacity of strip footing 1.5 m wide with its base at a depth of 1m resting on dry sandy stratum, [4]
Take, γ_d = 17 kN/m^3, Φ= 38^0, Nq= 60 and N_γ= 75

c) State and explain factors influencing bearing capacity of soil (Minimum 4 points) [4]