



R17 Regulation

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

Subject code: 1P7AA

B.Tech IV Year I Semester Regular Examinations, February 2021

Foundation Engineering
(Civil Engineering)

Maximum Marks: 70

Date: 20.02.2021 Duration: 3 hours

- Note:**
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10x2M=20 Marks)

- 1 Explain disturbed and un-disturbed samples.
- 2 List the uses of soil investigation report
- 3 Define finite and infinite slope
- 4 What are the various methods to analyze the finite slopes?
- 5 Write down any two assumptions in Rankine's theory.
- 6 What are the conditions to be satisfied while designing a retaining wall?
- 7 List the different types of shear failure in shallow foundation
- 8 Define Shallow foundation.
- 9 What are the factors governing the selection of piles?
- 10 What are different shapes of well foundation?

Part-B

Answer All the following questions.

(10M X 5=50Marks)

- 11 Explain in detail the various types of samplers with sketches. (10M)
OR
- 12 Explain the boring methods of site exploration in detail. (10M)
- 13 Explain the friction Circle method of analysis of stability of slopes. (10M)
OR
- 14 Explain the Swedish Circle method of Analysis of slopes. (10M)
- 15 Explain the Culmann's graphical method and the effect of line load. (10M)
OR
- 16 A retaining wall is 4 meters high. Its back is vertical and it has got sandy backfill up to its top. The top of the fill is horizontal and carries a uniform surcharge of 85 kN/m^2 . Determine the active earth pressure on the wall per meter length of wall. Water table is 1m below the top of the fill. Dry density of soil = 18.5 kN/m^3 . Moisture content of soil above water table = 12%. Angle of internal friction of soil = 30° , specific gravity of soil particles = 2.65. Porosity of backfill = 30%. The wall friction may be neglected. (10M)

- 17 A strip footing of 2m width is founded at a depth of 4m below the ground surface. Determine the net ultimate bearing capacity, using a) Terzaghi's equation, b) IS code. The soil is clay ($\phi = 0$, $c = 10 \text{ kN/m}^2$). The unit weight of the soil is 20 kN/m^3 . (10M)

OR

- 18 The following data was obtained from a plate load test carried out on a 60cm square test plate at a depth of 2m below ground surface on a sandy soil which extends up to a large depth. Determine the settlement of a foundation 3.0m x 3.0m carrying a load of 1100KN and located at a depth of 3m below ground surface. (10M)

Load intensity, KN/m^2	50	100	150	200	250	300	350	400
Settlement, mm	2.0	4.0	7.5	11.0	16.3	23.5	34.0	45.0

- 19 Briefly Discuss the measures for rectification of tilts and shifts in well foundations? (10M)

OR

- 20 Explain with neat sketch about pile load test method of determination of load carrying capacity of piles. (10M)