Department of Civil Engineering

NATIONAL INSTITUTE OF TECHNOLOGY CALICUT

Winter Semester 2020- '21

End Semester Examination

Name:_____

Reg. No._____

CE3004D GEOTECHNICAL ENGINEERING II

Duration: 30 min | Maximum Marks: [10]

Instructions: Answer *all* questions and assume suitable data if required

1. The following table shows the specifications for the two columns. Assume the allowable soil pressure as 200kN/m^2. The centre-to-centre spacing between the two columns is 5m and length of the footing as 6m.

	Column 1	Column 2
Size	0.6m*0.6m	0.6m*0.6m
Load	2000 kN	1800 kN
Property line	Near	Far

Design the trapezoidal footing for the above-mentioned details. [5]

2. A friction pile 300mm diameter is proposed to be driven in a layer of uniform cohesive soil. The pile tip is assumed to carry 20 percentage of the ultimate load carrying capacity of the pile. The skin friction between the pile surface and the soil is assumed to be 50kN/m2. Determine the length of pile required to carry a safe load of 200kN with factor of safety 3. If the pile has to carry the same safe load with 8m long pile, find the minimum diameter of the pile required?

[5]

END