

No Preview
Available

Total No. of Question : [4]

Registration No. :

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Programme Name : Bachelor of Civil Engineering
Regular T.Y.B.Tech. ESE (A.Y. 2023-24) Sem.V Nov.2023
V SEMESTER (2021 BATCH)
201CEL305-Foundation Engineering(TH)

Duration : [11:00 AM - 01:00 PM]

Date : 01 Dec, 2023

Day : Friday

Marks : 50

Instructions :

(Q1) All Questions are compulsory [20.0]

(1.1) Explain about the planning and stages in soil exploration [4.0]

CO :- C305.1

Blooms Taxonomy :- Remember, Understand, Apply, Analyze

(1.2) A 30cm square bearing plate settles by 8mm in the plate load test on cohesionless soil; when the intensity of loading is 200kN/sqm. Estimate the settlement of shallow foundation of 1.5m square in shape under the same intensity of loading. [4.0]

CO :- C305.1

Blooms Taxonomy :- Remember, Understand, Apply, Analyze

(1.3) Discuss factor affecting depth of foundation [6.0]

CO :- C305.2

Blooms Taxonomy :- Remember, Understand, Apply, Analyze

(1.4) Design rectangular combined foundation for soil bearing capacity 200kN/sqm. The two column loads of 1025kN and 1450kN at distance of 3.5m. Both column sizes are 0.35 x 0.35m. [6.0]

CO :- C305.2

Blooms Taxonomy :- Remember, Understand, Apply, Analyze

(Q2) Attempt any two out of three questions [10.0]

(2.1) Discuss Engineering News and Hiley's formula for determining capacity of pile. [5.0]

CO :- C305.3

Blooms Taxonomy :- Remember, Understand, Apply

(2.2) A group of 16 piles of 30 cm diameter is arranged with a center to center spacing of 1.5 m. The piles are 9 m long and are embedded in soft clay with cohesion 30 kN/sqm. [5.0]

Neglect end bearing. Adhesion factor is 0.6. Determine the ultimate load capacity of the pile group.

CO :- C305.3

Blooms Taxonomy :- Remember, Understand, Apply

(2.3) Write short note on under-reamed pile [5.0]

CO :- C305.3

Blooms Taxonomy :- Remember, Understand, Apply

(Q3) Attempt any two out of three questions [10.0]

(3.1) Explain components of well foundation [5.0]

CO :- C305.3

Blooms Taxonomy :- Remember, Understand, Apply

(3.2) Explain types of sheet pile . [5.0]

CO :- C305.3

Blooms Taxonomy :- Remember, Understand, Apply

(3.3) Explain advantages of cellular cofferdam over other types of cofferdam [5.0]

CO :- C305.3

Blooms Taxonomy :- Remember, Understand, Apply

(Q4) Attempt any two out of three questions [10.0]

(4.1) What are factors that cause slope instability? [5.0]

CO :- C305.4

Blooms Taxonomy :- Remember, Understand, Apply

(4.2) Calculate the factor of safety w.r.t. cohesion, of a clay slope laid at 1 in 2 to a height of 10m, if the angle of internal friction = 10 degree, $C = 25 \text{ kN/sqm}$ and unit weight = 18 kN/cu.m . What will be the critical height of the slope in this soil?
Take $S_n = 0.064$ [5.0]

CO :- C305.4

Blooms Taxonomy :- Remember, Understand, Apply

(4.3) A stability analysis by the method of slices gives the following forces per running meter for 10m high embankment. (1) Total Shearing forces = 450 kN (2) Total Normal forces = 900 kN (3) Total Neutral forces = 216 kN, The length of the failure arc is 27 m. Laboratory tests on the soil indicate the effective values $C = 20 \text{ kN/sqm}$ and angle of internal friction = 18 degrees [5.0]
Determine the factor of safety of the slope.

CO :- C305.4

Blooms Taxonomy :- Remember, Understand, Apply
