

Unit 5 - Week 3

Assignment 3

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-08-21, 23:59 IST.

1) 1 point

In a cross hole test, the trigger and geophones are 5 m apart. After impact, the arrival time of wave at geophone is 20 msec. The velocity of wave is

- a) 200 m/sec
- b) 300m/sec
- c) 250m/sec
- d) 350 m/sec

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

c)

2) 1 point

A deposit of over consolidated clay is underlain by bedrock. Previous subsurface investigations in the area suggest that the bedrock surface is nearly horizontal. A seismic reflection survey shows the arrival of p-waves at a geophone are 38 msec and 200 msec after an impulsive load is applied at a point 20 m from the geophone. Determine the thickness and the p-wave velocity of the clay deposit.

- a) 51.6 m
- b) 62.3 m
- c) 71.9 m
- d) 44.6 m

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

a)

3) 1 point

List I enlists bearing capacity terms. List II provides definitions. Match the type of bearing capacity terms with best possible definitions

List I

- i. Ultimate bearing capacity
- ii. Net safe bearing capacity
- iii. Gross safe bearing capacity
- iv. Allowable bearing pressure

List II

- A) Net loading intensity at which neither soil fails in shear nor is there any excessive settlement
- B) The maximum gross intensity of loading that soil can carry safely without failing in shear
- C) Net ultimate bearing capacity divided by factor of safety
- D) The maximum gross intensity of loading that soil can support before it fails in shear.

(a) i-D, ii-C, iii-B, iv-A

(b) i-B, ii-A, iii-D, iv-C

(c) i-D, ii-B, iii-C, iv-A

(d) i-B, ii-A iii-C, iv-D

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

a)

4) 1 point

A square footing fails by general shear in a cohesionless soil having $\phi=35^\circ$ under an ultimate load of $Q_{ult}=380$ kN. The footing is placed at a depth of 2 m below ground level. Given $\gamma=17$ kN/m³, $N_q = 41.1$, $N_\gamma = 42.4$. Determine the size of the footing if the water table is found at a greater depth [Use Terzaghi's Theory].

- (a) 2.35 m
- (b) 0.60 m
- (c) 0.49 m
- (d) 1.50 m

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

c)

5) 1 point

Two circular footings of diameters D_1 and D_2 are resting on the surface of a purely cohesive soil ($\phi=0$). The ratio $D_1/D_2=2$. If the ultimate bearing capacity of the footing of diameter D_1 is 200 kN/m², then the ultimate bearing capacity (in kN/m²) of footing diameter D_2 will be

- (a) 100
- (b) 200
- (c) 340
- (d) 600

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

b)

6) 1 point

In Terzaghi's analysis, the loading conditions are similar to that on a retaining wall under

- (a) Active pressure
- (b) Effective pressure
- (c) Passive pressure
- (d) Neutral pressure

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

c)

7) 1 point

A rectangular footing 1 m x 2 m is placed at a depth of 1 m in saturated clay having an unconfined compressive strength 100 kN/m². According to Skempton, the net ultimate bearing capacity is

- a) 660 kN/m²
- b) 412.5 kN/m²
- c) 385 kN/m²
- d) 330 kN/m²

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

d)

8) 1 point

Determine the ultimate bearing capacity of a strip footing, 1.5 m wide, with its base at a depth of 1 m, resting on a dry sand stratum. Take $\gamma_d=17$ kN/m³, $\phi'=38^\circ$ and $c'=0$. Use Terzaghi's theory ($N_q = 60$, $N_\gamma = 75$).

- a) 2006 kN/m²
- b) 1976 kN/m²
- c) 1550 kN/m²
- d) 2567 kN/m²

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

b)

9) 1 point

A strip footing of 2 m width is founded at a depth of 1 m below the ground surface. According to Terzaghi, the net ultimate bearing capacity in kN/m² is ($\phi = 40^\circ$, $c = 0$, $N_c = 95.7$, $N_q = 81.3$, $N_\gamma = 100.4$, $\gamma = 17$ kN/m³)

- (a) 3072
- (b) 3015
- (c) 4023
- (d) 2504

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

a)

10) A combined footing is used when 1 point

- (a) Number of columns are two and they are spaced far apart
- (b) Number of columns are two and they are spaced close to each other
- (c) Number of column is more than two and they are spaced far apart
- (d) There is only one column

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

b)

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Lecture 12 : Shallow Foundation - Bearing Capacity II

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Lecture 14 : Shallow Foundation - Bearing Capacity IV

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