

Unit 6 - Week 4 :

Course outline

How to access the portal

Week 0 : Assignment 0

Week 1

Week 2

Week 3

Week 4 :

 Lecture 16 : Shallow Foundation - Settlement I

 Lecture 17 : Shallow Foundation - Settlement II

 Lecture 18 : Shallow Foundation - Settlement III

 Lecture 19 : Shallow Foundation - Settlement IV

 Lecture 20 : Shallow Foundation - Settlement V

 Lecture Material

 Quiz : Assignment 4

 Feedback for Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

Download Videos

Assignment Solution

Assignment 4

The due date for submitting this assignment has passed.

Due on 2019-08-28, 23:59 IST.

As per our records you have not submitted this assignment.

 1) A strip footing of width 3 m is founded at a depth of 2 m below the ground surface having a cohesion $c = 30 \text{ kN/m}^2$ and the angle of shearing resistance $\phi = 38^\circ$. The water table is at a depth of 5 m below the ground level. The unit weight of soil above the water table is 17.25 kN/m^3 . Determine the net safe bearing pressure for a factor of safety of 3. [Use Terzaghi's Theory] 1 point

- (a) 2456 kN/m²
 (b) 3447 kN/m²
 (c) 2877 kN/m²
 (d) 2211 kN/m²

 a

 b

 c

 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

d

 2) The immediate settlement can be computed from the expression, based on 1 point

- (a) Theory of plasticity
 (b) Theory of elasticity
 (c) Terzaghi's analysis
 (d) Pressure distribution

 a

 b

 c

 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

b

 3) As per IS code, the allowable settlement for sand is limited to 1 point

- (a) 50 mm for isolated footing and 75 mm for raft
 (b) 50 mm for isolated footing and 50 mm for raft
 (c) 75 mm for isolated footing and 50 mm for raft
 (d) 50 mm for isolated footing and 25 mm for raft

 a

 b

 c

 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

a

 4) If the angular distortion of 1/300 is allowed between columns 7.5 m apart, what is the corresponding value of differential settlement? 1 point

- (a) 34 mm
 (b) 21 mm
 (c) 25 mm
 (d) 15 mm

 a

 b

 c

 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

c

 5) A 4 m thick layer of a fill material ($\gamma_{bulk} = 20 \text{ kN/m}^3$) is to be laid instantaneously on the top surface of a 10 m thick clay layer. If the coefficient of volume compressibility (m_v) and γ_{sat} for clay are $3.2 \times 10^{-4} \text{ m}^2/\text{kN}$ and 18 kN/m^3 , the consolidation settlement of the clay layer due to placing of fill material will be [Do not apply any correction factor for settlement]. 1 point

- (a) 256 mm
 (b) 320 mm
 (c) 276 mm
 (d) 226 mm

 a

 b

 c

 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

a

 6) What is the immediate settlement of a concrete isolated footing 1.5 x 1.5 m in size founded at a depth of 1 m in silty soil whose modulus of elasticity is 90 kg/cm^2 ? The footing is expected to transmit a unit pressure of 200 kN/m^2 . Take $\mu = 0.3$ [Do not apply any correction factor for settlement]. Assume $g = 10 \text{ m/sec}^2$ 1 point

- (a) 2.3 cm
 (b) 2.1 cm
 (c) 3.8 cm
 (d) 3.4 cm

 a

 b

 c

 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

d

 7) An isolated footing 4 m x 2 m in plan, transmits a pressure of 150 kN/m^2 on a cohesive soil having $E = 6 \times 10^4 \text{ kN/m}^2$ and $\mu = 0.50$. Determine the immediate settlement of the footing at the centre, considering it to be a flexible footing [Do not apply any correction factor for settlement]. 1 point

- (a) 5.2 mm
 (b) 4.5 mm
 (c) 5.7 mm
 (d) 11.4 mm

 a

 b

 c

 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

c

 8) A 300 mm square bearing plate settles by 21 mm in a plate load test on a cohesive soil when the intensity of loading is 0.2 N/mm^2 . The settlement of a prototype shallow footing 1 m square (1 m x 1 m) under the same intensity of loading (considering both plate and footing are placed at same depth) is 1 point

- (a) 15 mm
 (b) 70 mm
 (c) 50 mm
 (d) 167 mm

 a

 b

 c

 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

b

 9) For cohesive soil, _____ settlement is the major settlement 1 point

- (a) Immediate settlement
 (b) Primary consolidation settlement
 (c) Secondary settlement
 (d) All of the mentioned

 a

 b

 c

 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

b

 10) Permissible settlement is relatively higher for 1 point

- (a) Isolated footing on clays
 (b) Isolated footing on sands
 (c) Rafts on clays
 (d) Rafts on sands

 a

 b

 c

 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

c