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NPTEL

reviewer4@nptel.iitm.ac.in ▾

Courses » Soil Mechanics/Geotechnical Engineering I

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Unit 11 - Week 9

Register for Certification exam

Course outline

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- Lecture 41: Compressibility of Soils (Contd.)
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- Lecture 43: Compressibility of Soils (Contd.)
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- Lecture 45: Compressibility and Settlement

Assignment 9

The due date for submitting this assignment has passed. **Due on 2019-04-03, 23:59 IST**
As per our records you have not submitted this assignment.

1) ***1 point***

A clay sample, originally 28.0 mm thick at a void ratio of 1.02, was subjected to compressive load. After the clay sample was completely consolidated, it thickness w measured to be 23.0 mm. The final void ratio will be

(a) 0.94 (b) 0.87 (c) 0.77 (d) 0.66

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
d

2) ***1 point***

If the time required for 50% consolidation of a remoulded soil sample of clay with sing drainage is t, then what is the time required for 80% consolidation of the same sample clay?

(a) 2.9t (b) 4.5t (c) 5t (d) 6t

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
a

3) ***1 point***

a
b
c
d

No, the answer is incorrect.
Score: 0

Accepted Answers:
d

4) 1 point

At another site, the same clay layer as given in Question No. 3 is bounded by impervious boundary at the bottom and sand at the top. What is the time (in years) taken by this layer to reach 90% consolidation settlement?

(a) 21 (b) 27 (c) 35 (d) 44

a
b
c
d

No, the answer is incorrect.
Score: 0

Accepted Answers:
a

5) 1 point

A 2.0 m thick saturated clay layer, drained at both faces, settles by 90.0 mm in one year. If a thin layer of pervious soil is introduced in the middle of this layer, then what will be the period (in years) during which the settlement of 90.0 mm will be completed?

(a) 0.25 (b) 0.5 (c) 0.75 (d) 1.0

a
b
c
d

No, the answer is incorrect.
Score: 0

Accepted Answers:
a

6) 1 point

A 7.5 m thick clay layer is drained only through the top surface. The co-efficient of consolidation of the soil is 7.45×10^{-2} mm^2/sec. What will be the time (approximately in days) required for 50% consolidation of the layer due to an external load?

(a) 1402 (b) 1713 (c) 1878 (d) 2000

a
b
c
d

No, the answer is incorrect.
Score: 0

Accepted Answers:
b

7) **1 point**

A 37.0 mm thick sample of clay is tested in a consolidometer under single draina condition. Determine the coefficient of consolidation (expressed in m^2/sec) if ti required for 90% consolidation is 134.56 minutes.

(a) 1.34×10^{-7} (b) 1.44×10^{-7} (c) 1.51×10^{-7} (d) 1.60×10^{-7}

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
b

8) **1 point**

The consolidation settlement of a new structure founded on a 6.0 m thick laye estimated as 77.0 mm. The structure was found to have settled by 21 mm in 8 mo after the completion of construction. If the clay layer is underlain by rock and overlai a layer of coarse sand, the coefficient of consolidation (in m^2/month) of the clay l will be

(a) 0.04 (b) 0.11 (c) 0.20 (d) 0.26

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
d

9) **1 point**

For the same clay layer given in Question No. 8, what will be the approximate time days) required for 50% consolidation to occur? Assume time factor (T_v) for 5(settlement is 0.197.

(a) 818 (b) 905 (c) 955 (d) 974

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
a

10) **1 point**

For a certain loading condition, saturated clay undergoes 50% consolidation in a per of 202 days. What would be the additional time (approximately in days) required further 30% consolidation to occur?

(a) 97 (b) 316 (c) 445 (d) 515

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
b

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