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Courses » Soil Mechanics/Geotechnical Engineering I

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## Unit 12 - Week 10

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### Course outline

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● Lecture 46:  
Compressibility  
and Secondary  
Compression

● Lecture 47:  
Earth Pressure

● Lecture 48:  
Earth Pressure  
(Contd.)

## assignment 10

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment. **Due on 2019-04-10, 23:59 IST.**

1) 1 point

If  $\sigma_h$ ,  $\sigma_v$ ,  $\sigma'_h$ ,  $\sigma'_v$  represent the total horizontal stress, total vertical stress, effective horizontal stress and effective vertical stress on a soil element, respectively, the coefficient of earth pressure at rest is given by

- (a)  $\frac{\sigma_v}{\sigma_h}$       (b)  $\frac{\sigma_h}{\sigma_v}$       (c)  $\frac{\sigma'_v}{\sigma'_h}$       (d)  $\frac{\sigma'_h}{\sigma'_v}$

- a  
 b  
 c  
 d

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

d

2) 1 point

If the angle of internal friction of a cohesionless soil is  $35^\circ$ , the passive coefficient of earth pressure will be

- (a) 0.271      (b) 3.690      (c) 0.426      (d) 1.329

- a  
 b  
 c  
 d

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For the soil given in Question No. 2, the ratio of active to passive earth pressure coefficient will be

- (a) 0.073      (b) 2.415      (c) 6.451      (d) 13.616

- a  
 b  
 c  
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

a

4)

Consider the following statements:

- (i) Coulomb's earth pressure does not take the roughness of wall into consideration  
(ii) In case of non – cohesive soils, coefficient of active earth pressure and earth pressure at rest are equal  
(iii) Any movement of retaining wall away from the fill corresponds to active earth pressure condition

Of these statements

- (a) (i) alone is correct  
(b) (i) and (ii) are incorrect  
(c) (ii) alone is correct  
(d) (iii) alone is incorrect

- a  
 b  
 c  
 d

No, the answer is incorrect.

Score: 0

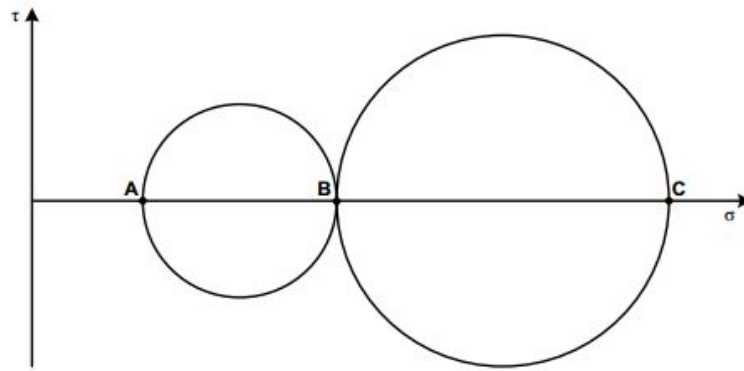
Accepted Answers:

b

5)

1 point





Two Mohr's Circles for active and passive case at failure are shown above. Which of the following statement(s) is/are CORRECT?

- (i) Point A represents minor principal stress for active earth pressure.
- (ii) Point B represents major principal stress for active earth pressure and minor principal stress for passive earth pressure.
- (iii) Point C represents major principal stress for passive earth pressure.

(a) only (i)      (b) (i) and (ii)      (c) all of these      (d) none of these

- a
- b
- c
- d

No, the answer is incorrect.

Score: 0

Accepted Answers:

c

6)

1 point

An earth-retaining structure may be subjected to the following lateral earth pressures:

- (i) Earth pressure at rest
- (ii) Passive earth pressure
- (iii) Active earth pressure

The correct sequence of the decreasing order of the magnitude of these pressures is

- (a) (iii), (ii), (i)
- (b) (i), (iii), (ii)
- (c) (ii), (i), (iii)
- (d) (iii), (i), (ii)

- a
- b
- c
- d

No, the answer is incorrect.

Score: 0

Accepted Answers:

c

7) 1 point  
A vertical cut is to be made in  $c - \phi$  soil with  $c = 14.5 \text{ kN/m}^2$ ,  $\phi = 30^\circ$  and  $\gamma = 18.0 \text{ kN/m}^3$ . What is the theoretical depth (in m) to which the soil can be excavated without side collapse?

- (a) 3.22      (b) 4.71      (c) 5.58      (d) 6.12

- a  
 b  
 c  
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

c

8) 1 point  
The intensity of passive earth pressure (in  $\text{kN/m}^2$ ) at a depth of 9.0 m in dry sand with an angle of shearing resistance of  $37^\circ$  and unit weight of  $20.0 \text{ kN/m}^3$  will be

- (a) 432.1      (b) 504.8      (c) 655.4      (d) 724.1

- a  
 b  
 c  
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

d

9) 1 point  
A 5.5 m high masonry retaining wall has to retain a backfill of sandy soil having a unit weight of  $18.8 \text{ kN/m}^3$  and an angle of internal friction of  $35^\circ$ . The surface of the backfill is inclined at an angle  $10^\circ$  to the horizontal. The active earth pressure coefficient will be

- (a) 0.282      (b) 0.354      (c) 0.441      (d) 0.478

- a  
 b  
 c  
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

a

10) 1 point  
For the data given in Question No. 9, the magnitude of active thrust ( $\text{kN/m}$ ) on the wall will be

- (a) 54.4      (b) 66.7      (c) 71.4      (d) 80.1

- a
- b
- c
- d

No, the answer is incorrect.

Score: 0

Accepted Answers:

*d*



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