



Unit 12 - Week 10

Course outline

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Assignment Solution

Assignment 10

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

Due on 2019-10-09, 23:59 IST.

 1) 1 point

A 6m high vertical wall supports a cohesive backfill. The unit weight and cohesion of the top 4 m of backfill are respectively 16 kN/m^3 and 20 kN/m^2 . The unit weight and cohesion of the bottom 2 m of backfill are respectively 17 kN/m^3 and 25 kN/m^2 . If the tension crack develop, what is the total Rankine active thrust

- 40 kN/m length
- 60 kN/m length
- 80 kN/m length
- 100 kN/m length

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
c.

 2) 1 point

The active earth pressure caused by a cohesionless backfill on a smooth vertical retaining wall may be reduced by

- Compacting the backfill
- Providing a surcharge load on the backfill
- Saturation of backfill with water
- None of the above

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
a.

 3) As per Rankine's theory, the wall friction is 1 point

- Equal to ϕ
- Greater than ϕ
- Less than ϕ
- Zero

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
d.

 4) The minimum factor of safety against sliding in the case of gravity retaining wall is 1 point

- 1.2
- 1.5
- 2
- 3

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
b.

 5) The stability of gravity retaining wall depends upon their 1 point

- Weight
- Weight and reinforcement
- Stem of the wall
- None of the above

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
a.

 6) 1 point

A 5 m high retaining wall retain a soil with the following properties

$$c' = 0, \phi' = 30^\circ, \gamma = 17 \text{ kN/m}^3, \delta = 20^\circ$$

The backfill surface is sloping at an angle 10° to the horizontal and the back of the wall is inclined at an angle 70° to the horizontal. Determine the Coulomb active thrust

- 100 kN/m length
- 110 kN/m length
- 120 kN/m length
- 140 kN/m length

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
c.

 7) 1 point

A retaining wall with smooth vertical back is 5 m high and retains a 2 layer sand backfill with the following properties

$$0 - 2.5\text{m}: \phi' = 35^\circ, \gamma = 16 \text{ kN/m}^3$$

$$2.5 - 5 \text{ m} : \phi' = 40^\circ, \gamma_{\text{sat}} = 20 \text{ kN/m}^3$$

The water table is at a depth of 2.5 m below the ground surface. Determine the Rankine active earth thrust, Assume $\gamma_w = 10 \text{ kN/m}^3$

- 113 kN/m length
- 93 kN/m length
- 83 kN/m length
- 73 kN/m length

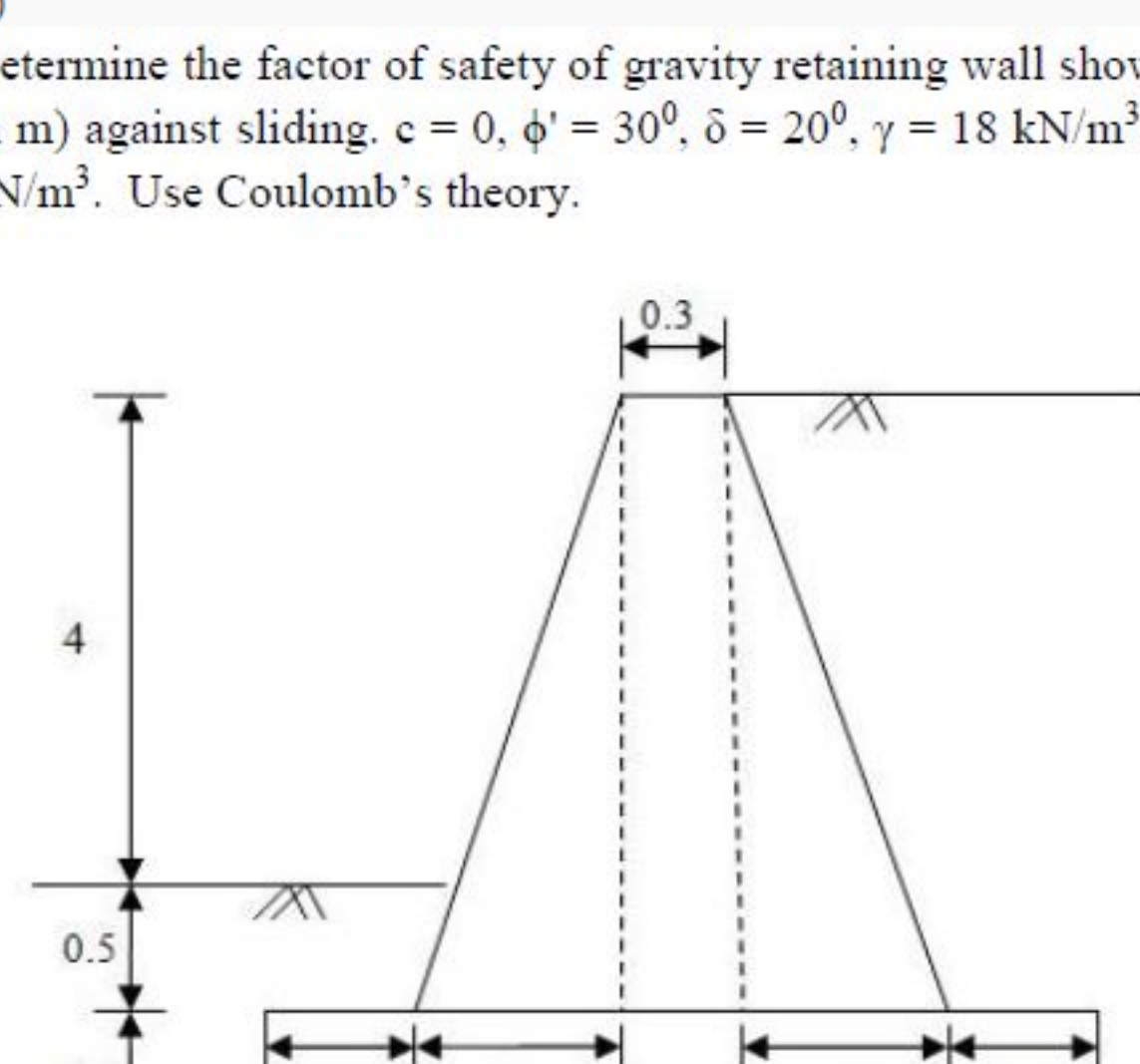
- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
d.

 8) 1 point

Determine the factor of safety of gravity retaining wall shown in fig (all dimensions are in m) against sliding. $c = 0, \phi' = 30^\circ, \delta = 20^\circ, \gamma = 18 \text{ kN/m}^3$. Unit weight of concrete 24 kN/m^3 . Use Coulomb's theory.



- 0.93
- 1.14
- 1.34
- 1.5

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
a.

 9) 1 point

Determine the factor of safety of retaining wall (given in question 9) against overturning

- 2.13
- 2.35
- 2.51
- 2.96

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
c.

 10) 1 point

Consider two retaining walls 'A' and 'B' of same height retaining soil with identical properties. A has perfectly smooth back whereas 'B' has a rough back. 'B' will experience an active pressure

- Greater than A
- Less than A
- Equal to A
- Determined by roughness

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
b.