Unit 8 - Week 6

Assignment 6

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

Due on 2020-03-11, 23:59 IST.

1) An infinite soil slope consists of a dry granular soil having friction angle of 35°. The slope angle is estimated to be 30°. What is the factor of safety against sliding failure? *1 point*

- 1.15
- 1.20
- 0.82
- 0.87

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.20

2) What is the factor of safety of the above slope (in Question 1) during continuous rains when the water flows along the surface? *1 point*

- 0.60
- 1.20
- 0.45
- 0.41

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.60

3) An infinite soil slope of 6 m height and 30° slope angle consists of soil having properties of $c = 25$ kPa, $\phi = 25^{\circ}$ and unit weight of 20 kN/ m^3. What is the factor of safety of the slope? *1 point*

- 2.05
- 1.29
- 0.97
- 1.05

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.29

4) What are the different surface treatments used to protect the slope surfaces? *1 point*

- Vegetation
- coir or jute mat covering
- Stone filled gabion facings
- All of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
All of the above

5) A 8 m high embankment with slope angle of 70° is made up of clay soil with $c_{uu} = 30\ kPa$ and $\phi_{uu} = 0^{\circ}$. The unit weight of the soil is 18 kN/ m^3. *1 point*

The radius of the slip circle is 12.5 m. The angle made by the two extreme arcs of the slip circle at the centre of the slip circle is 90°. The centre of the critical slip circle is at a height of 3.50 m above the crest. The weight of the soil mass in the slip circle is 1500 kN/m. The resultant of this weight is at a horizontal distance of 5 m from the slip circle centre. What is the factor of safety of the slope?

- 0.98
- 1.02
- 0.65
- 2.5

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.98

6) In the above problem, a flexible basal reinforcement layer capable of providing 450 kN/m of safe tensile force is provided. Assume that sufficiently long length of reinforcement is provided. What is the factor of safety of the reinforced slope? *1 point*

- 1.6
- 1.7
- 1.3
- 0.9

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.7

7) What should be the minimum tensile force to be provided by a rigid basal reinforcement to increase the factor of safety to 1.3 in problem No. 5? *1 point*

- 207.6 kN/m
- 190.9 kN/m
- 180.2 kN/m
- 250.8 kN/m

No, the answer is incorrect.
Score: 0
Accepted Answers:
207.6 kN/m

8) It is required to design the reinforcement for a steep embankment resting on a competent soil. The height of the slope is 10 m and constructed with a slope angle of 60°. The properties of the soil are $c = 0, \phi = 30^{\circ}$ and $\gamma = 20 kN/m^3$. A uniform surcharge of 20 kPa acts on top of the slope. What is the total resistance force to be provided by the reinforcement layers to increase the factor of safety to 1.4. Perform the analysis by planar wedge method. *1 point*

- 320 kN/m
- 266.8 kN/m
- 277.2 kN/m
- 960 kN/m

No, the answer is incorrect.
Score: 0
Accepted Answers:
320 kN/m

9) In the above problem, what is the maximum sliding force at the base of the slope? *1 point*

- 480.9 kN/m
- 320.3 kN/m
- 185.6 kN/m
- 266.8 kN/m

No, the answer is incorrect.
Score: 0
Accepted Answers:
185.6 kN/m

10) In problem 8, what is the factor of safety of the slope if the total tensile force provided by the reinforcement layers is only 250 kN/m? *1 point*

- 1.40
- 1.31
- 1.15
- 2.10

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.31