Unit 3 - Week 1

Assignment 1

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

Due on 2019-08-14, 23:59 IST.

1) *1 point*

The void ratio of clay sample is 0.5 and the water content is 11.11%. Compute the Bulk unit weight. G= 2.7, $\gamma_w = 9.81\ kN/m^3$.

a) $12.31\ kN/m^3$
b) $14.61\ kN/m^3$
c) $19.62\ kN/m^3$
d) $21.93\ kN/m^3$

a)
b)
c)
d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
c)

2) *1 point*

The liquid limit (LL), plastic limit (PL) and shrinkage limit (SL) of a cohesive soil satisfy the relation

a) LL > PL < SL
b) LL < PL > SL
c) LL < PL < SL
d) LL > PL > SL

a)
b)
c)
d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
d)

3) *1 point*

A sample of saturated clay has a total mass of soil 1.5 kg and a dry mass of 1 kg: G = 2.65. For this sample determine the porosity

a) 0.45
b) 0.57
c) 0.65
d) 0.71

a)
b)
c)
d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
b)

4) *1 point*

A sand layer at sea floor under 20 m water depth is characterised with $\gamma_{sat} = 19.5\ kN/m^3$, specific gravity of soil = 2.65. Assume the specific gravity of sea water to be 1.03 and the unit weight of fresh water (γ_w) to be $9.81\ kN/m^3$. What would be the total stress and pore pressure at 25 m depth below the sea floor in the sand layer?

a) $689.5\ kN/m^2$, and $454.5\ kN/m^2$
b) $600.7\ kN/m^2$, and $400.8\ kN/m^2$
c) $789.5\ kN/m^2$, and $454.5\ kN/m^2$
d) $689.5\ kN/m^2$, and $325.6\ kN/m^2$

a)
b)
c)
d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
a)

5) *1 point*

Determine the shear strength in term of effective stress on a plane within a saturated soil mass at a point where the total normal stress is $210\ kN/m^2$ and the pore water pressure $85\ kN/m^2$. The effective stress shear strength parameter for soil are : c' = 15 kN/m^2, $\phi = 30^0$

a) $67.25\ kN/m^2$
b) $71.12\ kN/m^2$
c) $79.21\ kN/m^2$
d) $87.17\ kN/m^2$

a)
b)
c)
d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
d)

6) *1 point*

A cylindrical specimen of saturated clay, 3.5 cm in diameter and 7 cm in height was tested in an unconfined compression testing machine. The specimen fails under an axial load of 0.4 kN when the axial deformation was 8 mm. The unconfined compressive strength of the soil is

a) $368.32\ kN/m^2$
b) $468.32\ kN/m^2$
c) $46.38\ kN/m^2$
d) $36.38 kN/m^2$

a)
b)
c)
d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
a)

7) *1 point*

A soil sample has a compression index of 0.3. If the void ratio e at a stress of 1.5 kg/m^2 is 0.5, compute the void ratio if the stress increased to 2.5 kg/m^2

a) 0.33
b) 0.38
c) 0.43
d) 0.51

a)
b)
c)
d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
c)

8) *1 point*

Rise of water table above the ground surface causes

a) Equal increase in pore water pressure and total stress
b) Equal decrease in pore water pressure and total stress
c) Increase in pore water pressure and decrease in total stress
d) Decrease in pore water pressure and increase in total stress

a)
b)
c)
d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
a)

9) *1 point*

Wash boring may not be used for which type of soil

a) Cohesive soil
b) Cohesionless soil
c) Soil mixed with gravel and boulder
d) All of the above

a)
b)
c)
d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
c)

10) *1 point*

Unconfined compressive strength test is

a) Drained test
b) Undrained test
c) Consolidated undrained test
d) Consolidated drained test

a)
b)
c)
d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
b)