

## Unit 2 - Week 0

### Course outline

How does an NPTEL online course work?

Week 0

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## Assessment 0

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

**Due on 2020-01-27, 23:59 IST.**

**Note : This assignment is only for practice purpose and it will not be counted towards the Final score**

- 1) Some attributes of granular soils are (more than one choice), **1 point**
- Grain size distribution
  - Shape of particles
  - Plasticity Index
  - Relative density

**No, the answer is incorrect.**  
**Score: 0**

**Accepted Answers:**  
*Grain size distribution*  
*Shape of particles*  
*Relative density*

- 2) The shear strength parameters of a soil are (more than one choice) **1 point**
- Cohesive strength
  - Friction angle
  - Flexural strength
  - Capillary strength

**No, the answer is incorrect.**  
**Score: 0**

**Accepted Answers:**  
*Cohesive strength*  
*Friction angle*

- 3) A granular soil has friction angle of  $30^\circ$ . The soil was tested in a direct shear box at a normal pressure of  $100\text{ kPa}$ . What is the maximum shear stress developed in the soil? **1 point**
- 57.73 kPa
  - 50 kPa
  - 173.20 kPa
  - 33.33 kPa

**No, the answer is incorrect.**  
**Score: 0**

**Accepted Answers:**  
*57.73 kPa*

- 4) A granular soil has friction angle of  $30^\circ$ . The soil was tested in triaxial compression at a confining pressure ( $\sigma_3$ ) of  $100\text{ kPa}$ . What is the maximum vertical stress ( $\sigma_1$ ) developed in the soil? **1 point**
- 57.73 kPa
  - 300 kPa
  - 200 kPa
  - 173.20 kPa

**No, the answer is incorrect.**  
**Score: 0**

**Accepted Answers:**  
*300 kPa*

- 5) In the above, what will be the angle of the rupture plane with respect to the major principal plane? **1 point**
- $30^\circ$
  - $45^\circ$
  - $90^\circ$
  - $60^\circ$

**No, the answer is incorrect.**  
**Score: 0**

**Accepted Answers:**  
 *$60^\circ$*

- 6) The limiting lateral earth pressure on a retaining wall moving away from the backfill soil is (only one choice), **1 point**
- Active earth pressure
  - At rest earth pressure
  - Passive earth pressure
  - Swell pressure

**No, the answer is incorrect.**  
**Score: 0**

**Accepted Answers:**  
*Active earth pressure*

- 7) A granular soil has a friction angle of  $30^\circ$ . The passive pressure coefficient of the soil is, **1 point**
- 0.50
  - 3
  - $\frac{1}{3}$
  - $\sqrt{3}$  (square root of 3)

**No, the answer is incorrect.**  
**Score: 0**

**Accepted Answers:**  
*3*

- 8) A smooth vertical retaining wall retains soil to a height of 6m. The backfill surface of the soil is horizontal. The properties of the soil are  $c = 0$ ,  $\phi = 35^\circ$ ,  $\gamma = 20\text{ kN/m}^3$ . Estimate the active lateral force on the wall exerted by the soil, **1 point**
- 292.7 kN/m
  - 97.6 kN/m
  - 180 kN/m
  - 220 kN/m

**No, the answer is incorrect.**  
**Score: 0**

**Accepted Answers:**  
*97.6 kN/m*

- 9) In the above problem, what is the overturning moment about the base of the wall? **1 point**
- 195.2 kN-m/m
  - 292.8 kN-m/m
  - 360 kN-m/m
  - 440 kN-m/m

**No, the answer is incorrect.**  
**Score: 0**

**Accepted Answers:**  
*195.2 kN-m/m*

- 10) In an infinite slope, a granular soil is stable at an angle of  $20^\circ$  in dry state. The factor of safety of the slope in dry state was estimated to be 1.80. During heavy rains, the factor of safety of the slope is likely to reduce to, **1 point**
- 0.90
  - Remain the same due to high permeability
  - 0.45
  - Cannot decide as its friction angle is unknown.

**No, the answer is incorrect.**  
**Score: 0**

**Accepted Answers:**  
*0.90*