

King Saud University
College of Engineering
Civil Engineering Department

CE 482 Foundation
1st Semester 1421-1422 H
Time allowed: 75 minutes

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Second Mid. Term Exam.

QUESTION # 1 (20%)

Select the most accurate answer for the following:

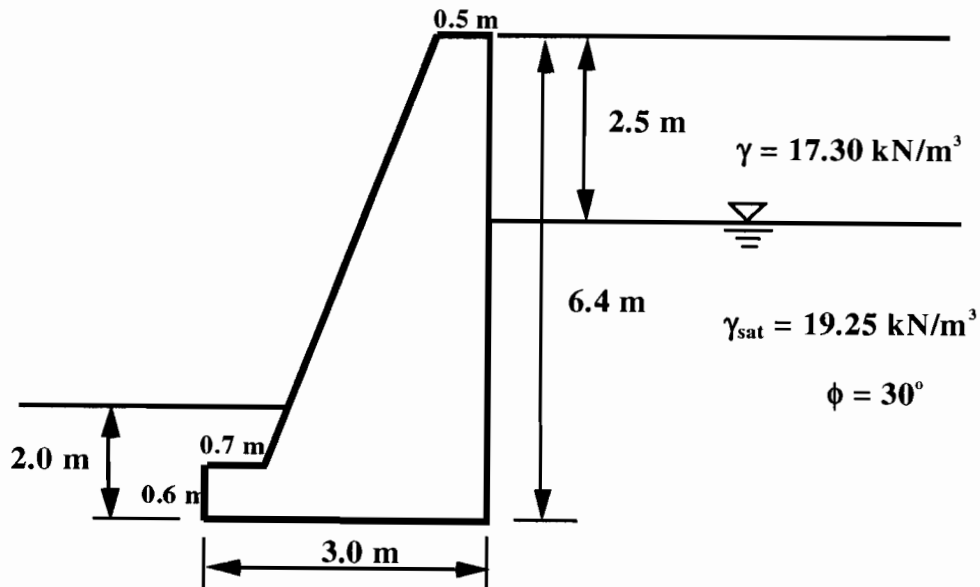
- (a) The lateral earth pressure is called the **active earth pressure** when:
- The wall is restrained from moving
 - The wall is pushed into the soil mass
 - The wall tilts away from the soil mass
- (b) The **joints** that are used in retaining walls to allow the concrete to shrink are:
- Construction joints
 - Contraction joints
 - Expansion joints
- (c) The method which **can not** be used for calculating the bearing capacity of piles in clay is :
- Meyerhof's method
 - Vesic's method
 - Coyle and Castello 's method
- (d) The **λ method** for estimating frictional resistance of piles in clay is proposed by:
- Meyerhof
 - Vijayvergiya and Focht
 - Coyle and Castello

QUESTION # 2 (40%)

A concrete retaining wall is shown in the figure below.

Determine the factor of safety against **overturning** using Rankine's theory (ignore P_p).

Use $\gamma_c = 23.58 \text{ kN/m}^3$ for the wall.



QUESTION # 3 (40%)

A driven pipe pile in clay is shown in the figure below. The pile has an outside diameter of 406 mm, and a wall thickness of 6.35 mm.

- (a) Calculate the net point bearing capacity?
- (b) Calculate the frictional resistance of the pile using λ method?
- (c) Calculate the net allowable pile capacity. Use FS = 4.

