


Course No: CVL 3413
Course Title: Soil Mechanics
Date: 25 – 03 – 2013
No. of Questions: 4
Time: 90 Minutes
Using Calculator: (Yes)

University of Palestine

Open-Book Midterm Exam
2nd Semester 2012/2013
Total Grade: 20

Instructor: Dr. Wa'el M. Albawwab
Student No.: _____
Student Name: _____
College Name: _____
Dep. / Specialist: _____
Using Dictionary: (Yes)

Q1-

- Describe Montmorillonite? (1 Mark)
- How and Why to obtain the OMC? (2 Marks)
- Compare between sandy and clayey soils. (1 Mark)
- Why does water climb in a thin glass tube? (1 Mark)

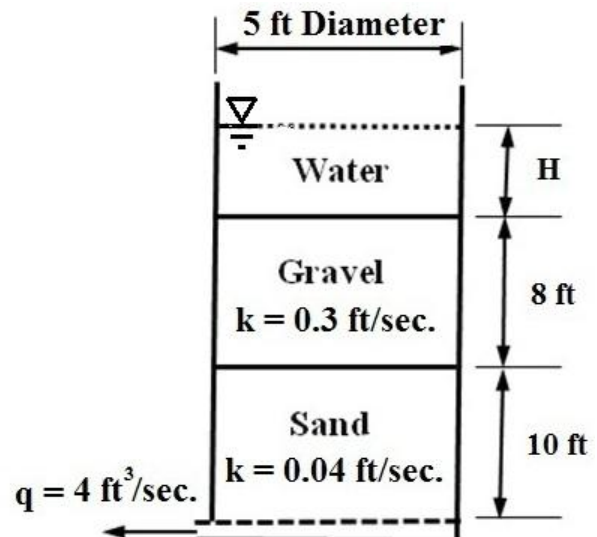
Q2- A soil sample has 60 % cumulative passing the sieve with an opening of 30 mm, 30 % cumulative passing the sieve with an opening of 4.75 mm, and 10 % cumulative passing the sieve with an opening of 0.075 mm. The plastic limit is 20 % and the liquid limit is 55 %.

- Classify the soil according to the USCS. (3 Marks)
- Describe and categorize the grain size of this soil. (2 Marks)

Q3- The consistency limits for a clay soil were: LL = 55%, PL = 27%, SL = 20%, and $G_s = 2.7$:

- Calculate the plasticity index of the soil. (1 Mark)
- Determine the liquidity index of the soil. (1 Mark)
- What is the consistency of the soil in its natural state? (1 Mark)
- If a 100 cm^3 saturated sample of this soil at its natural water content of 30% is allowed to dry, what will be its volume at a water content of 15%? (2 Marks)

Q4- Estimate the water height in the vertical cylinder, shown in the side figure, required to be maintained in order to get a constant flow rate of $4 \text{ ft}^3/\text{sec}$. (5 Marks)



End of Questions

Good Luck