

Saturday, March 26, 2011

Time Limit: 90 Minutes

Instructor: Dr. Wa'el M. Albawwab



**University of Palestine**  
**College of Applied Engineering  
& Urban Planning**

**ECGD3216 Soil Mechanics**

**Open Book Mid Term Exam**

**Answer All Questions**

**Q1-** Clay materials show plastic behavior when mixed with water. Explain. (2 Marks)

**Q2-** For an inorganic soil, the following grain-size analysis is given: (8 Marks)

% Finer	100	90	64	38	18	13
Sieve No.	4	10	20	40	80	200

For this soil,  $LL = 23$  and  $PL = 19$ .

- Classify the soil according to the AASHTO system
- List the factors affecting the field compaction process
- Determine the suitability number and rating for this soil as a backfill material

**Q3-** For a variable-head permeability test, the following are given: length of the soil specimen = 20 in., area of the soil specimen = 2.5 in.<sup>2</sup>, area of the standpipe = 0.15 in.<sup>2</sup>, head difference at time  $t = 0$  is 30 in., head difference at time  $t = 8$  min. is 16 in., what is the head difference at time  $t = 6$  min.? (4 Marks)

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Open Notes Mid Term Exam - Continued

Q4-

- a) Determine the height of water that has to be maintained above the top surface of gravel in the cylindrical tank shown below in order to achieve a constant flow rate of 40 liters per second. (3 Marks)
- b) If a piezometer tube is placed at the interface level between the two layers, determine the expected height of water into the tube. (3 Marks)

