Course No: CVL 4324
Course Title: Transportation Engineering II
Date: 12/03/2017
No. of Questions: (6)
Time: 60 Minutes
Using Calculator (Yes)

University of Palestine

First Midterm Exam
Second Semester
2016/2017
Total Grade: 30

Instructor Name: Eng. Hosam Malehy
Student No.: _____
Student Name: _____
College Name: Engineering
Dep. / Specialist: Civil Engineering
Using Dictionary (No)

Q.1 – Choose the correct answer: (5 Marks)

1. Which of the following facilities that is **not** for pedestrians in highway system :
   a. ramps
   b. sidewalks
   c. wide-curb lanes
   d. crosswalks

2. At a certain station in highway design, the fill=0.9m and the ground level = 88.5m, the design level of road surface is :
   a. (+ 87.6 m)
   b. (+ 89.4 m)
   c. (- 87.6 m)
   d. (- 89.4 m)

3. The amount of fill that required for filling a certain section equal to 125 m3, if the shrinkage percent = 8% , the net volume of fill is :-
   a. 130 m^3
   b. 135 m^3
   c. 125 m^3
   d. 115 m^3

4. The location of proposed highway depend on the collected data within **engineering area** like:
   a. Rainfall rate
   b. Topography and Soil characteristics
   c. Traffic volume
   d. All of the above

5. During location of recreational and scenic routes. The required low speed should be achieved by :
   a. curbstone
   b. narrow shoulder
   c. narrow lane
   d. wide median

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Q.2 – Mark each of the following statements True or False: (5 Marks)

1. Pedestrians are an integral part of any highway system but are more numerous in rural areas than in urban areas. ( )
2. The amount of earthwork in highway design depend mainly on the grade slope of vertical alignment. ( )
3. At the preliminary location survey, the horizontal, vertical alignments and drainage channels are located. ( )
4. During location of bridge routes , the soil layers is the most important data required. ( )
5. The embankment for the road sides is made in case of cut below the ground level. ( )

Q.3 – Complete the sentences: (3 Marks)

1. The net accumulation between …….. in the mass diagram refer to equality of cut and fill volumes between these points.
2. When the mass diagram slopes downward (negative), the preceding section is in ……., and when the slope is upward (positive), the preceding section is in …….
3. The …… distance is the maximum distance that earth will be moved without additional charges for the contractor.

Q.4 – List phases of highway location process ? (2 Marks)

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Q.5 - An embankment is formed on ground which is level transverse to the embankment. The width of formation is 12 m and the side slopes are 1 vertical to 3 horizontal. If the depths at the center lines of the three sections 20 m apart are 1.0, 1.4 and 1.6 m respectively, determine the volume of fill involved in this length using the average-end-area method. **(5Marks)**

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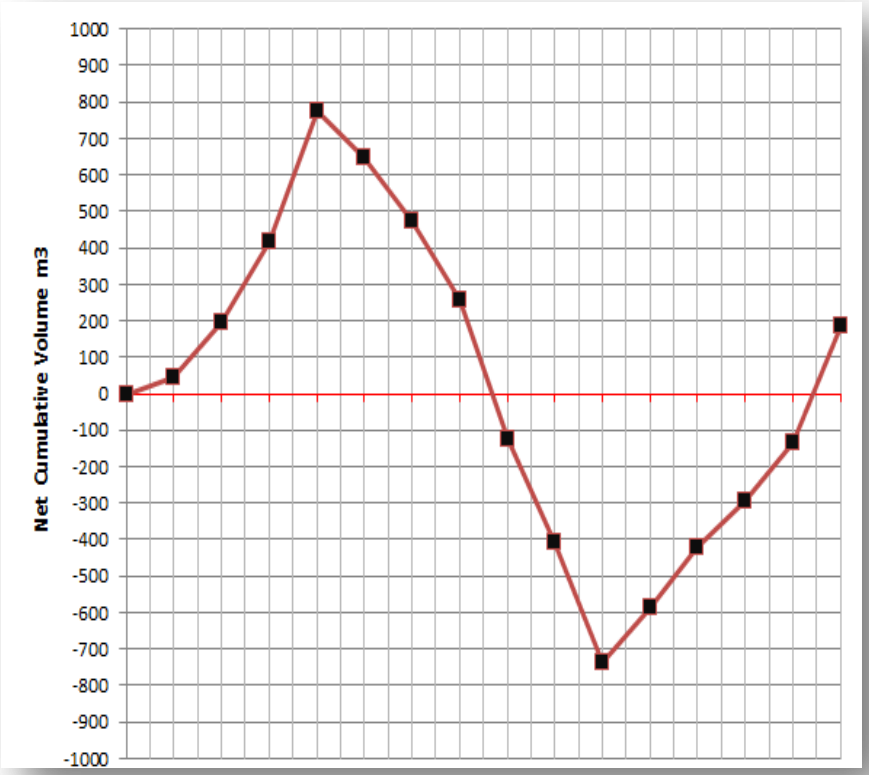
Q6. – A highway section is **450** m long with **15** stations . the given table and figure for its mass diagram, ordinate which represent the net cumulative volumes of cut & fill at each station. ***(10 Marks)***

Stations	Fill m^3	Cut m^3	Mass Diagram Ordinate m^3
0		45	0
1		150	45
2		220	195
3		360	415
4	-125		775
5	-175		650
6	-220		475
7	-380		255
8	-280		-125
9	-330		-405
10		150	-735
11		165	-585
12		125	-420
13		160	-295
14		320	-135
15			185



a. Determine the balance points on the x-axis?

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b. Determine the net cumulative cut or fill between stations

(St.0 & St. 8) :

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(St.6 & St.13) :

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(St.7 & St. 15) :

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c. Do you need borrow material from off site? Explain?

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d. If the free haul distance in this project contract = **250** m, Calculate the overhaul volume ?

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the end ….. Good luck