

Midterm exam 2013-2014

**Question 1**

Complete the following using one or two words at most

1. Urban streets represent an example of.....
2. ....,.....,.....are the three factors that affect the capacity
3. The level of service of intersections can be calculated as a function in .....
4. The flow on a road can be calculated using ..... or .....
5. The maximum capacity can be calculated at LOS.....
6. According to HCM, local streets in urban areas should be designed to LOS.....
7. The area in the freeway that contains vehicle crossing each other called .....
8. The ideal number of lanes in the freeway per direction is.....
9. The free flow speed can be calculated when the volume is less than.....
10. The median width affect the LOS of .....

**Question 2**

An intercity freeway is to be designed using the following information:

- AADT: 80,000 veh/day,  $K = 0.15$
- Directional distribution is 60:40 in the peak hour
- The traffic volume contains 5% truck, 5% buses, PHF: 0.95, Lane width: 11 ft, Shoulder width: 3 ft. Median width is 5 ft.
- There is interchange every one mile, Terrain: rolling, Design speed: 70 mile / hr
- Determine the number of lanes required to provide LOS B.

**Question 3**

A Highway section is being designed as a four-lane facility (three in each direction). Determine the peak hour LOS.

- The average daily traffic is: 28000 veh/h, PHF: 0.95,  $K=0.12$ , Directional distribution is 80:20
- Assumed base free flow speed: 60 mi/h
- Urban setting, rolling terrain, Lane width: 10 ft, Shoulder widths: 7 ft. and median width is 5 ft
- Average access point spacing: 12 points per mile.

*Best wishes.....Dr Ibrahim Ramadan*