GUJARAT TECHNOLOGICAL UNIVERSITY
M. E. Sem. – IInd - Examination – June/July- 2011
Subject code: 1721301
Subject Name: Traffic Engineering-2

Date:22/06/2011   **Time: 10:30 am – 01:00 pm**
                                                             Total Marks: 70

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** Define traffic management. Describe scope of traffic management. **07**
     (b) What is road pricing ? Explain economic principle behind road pricing **07**

Q.2 **(a)** Enlist travel demand measures techniques, explain restriction on right turning movement. **07**
     (b) What are the detrimental effects of traffic on environment? Enlist the major pollutants due to road vehicles. **07**
                                  OR
     (b) Explain by drawing sketch traffic flow bottle neck, shock wave formation **07**

Q.3 **(a)** Explain the level of service concept according to HCM manual **07**
     (b) What is the signal co ordination? Draw time distance diagram for two way street with linked signal. **07**
                                  OR
Q.3 **(a)** Explain by drawing sketch, capacity of weaving section as per highway capacity manual **07**
     (b) Describe in details factor affecting capacity and LOS. **07**

Q.4 **(a)** Maximum of capacity of two lane carriageway of four lane dual carriageway is 2000 veh/hr. due to pipe laying operation the width of two lane carriage way is reduced restricting maximum capacity of 1250 veh.hr. when the flow upstream beyond the influence of the bottle neck is reasonably steady and free flowing at 1500 veh/hr. find **07**
          (i)   the mean speed of traffic in bottleneck
          (ii)   Rate at which queue of congested condition outside the bottleneck grows.
     The space headway when the vehicles are stationary is 8 m, relation between speed and concentration is linear.
     (b) Explain Norman method of determining signalized intersection capacity. **07**
                                  OR
Q.4 **(a)** What are the general principles of traffic signing? **07**
     (b) What are the disadvantages of one way street working. **07**

Q.5 (a) What is the simulation of traffic? Describe advantages of simulation techniques.   **07**

(b) A fixed time two phase signal is to be provided at intersection having north south and east west road where only straight ahead traffic is permitted, the design hour flows from the various arms and saturation flows for these arms are given in the following table   **07**

	North	South	East	West
Design hour flow in PCU/Hr	800	400	750	1000
Saturation flow in PCU/Hr	2400	2000	3000	3000

Calculate optimum cycle time and the green time for minimum overall delay. The inter green time should be minimum necessary for efficient operation. The lost per phase due to starting delay can be assumed 2 sec, the value of amber phase is 2 sec. draw the sketch of timing diagram for each phase.

OR

Q.5 (a) Describe the steps involves in simulation techniques.   **07**

(b) Explain desirable parking space standards.   **07**

****