Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E –IIst SEMESTER–EXAMINATION – JULY- 2012

Subject code: 1721301 **Date: 06/07/2012**

Subject Name: TRAFFIC ENGINEERING-II

Time: 10:30 am – 13:00 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)**	What are the basic traffic flow characteristics? Explain relationship among speed, flow and density with curves.	**07**
	(b)	Explain the relationship between highway capacity and level of service with sketch.	**07**
Q.2	**(a)**	I. Determine the capacity of a single lane pavement on a highway in rural area for a design speed of 50 K.P.H. The average length of car can be taken 5.0m.PIEV time is 2.5 sec. Coefficient of friction is 0.5.	**03**
		II. What are the factors affecting capacity and LOS?	**04**
	(b)	Define LOS. Discuss about operating conditions for LOS selected by HCM.	**07**
		OR	
Q.2	**(b)**	I. A four armed intersection has the following width: North arm:7.5 m South arm:7.5 m East arm:5.5 m West arm:5.5 m What is saturation flow in each arm?	**04**
		II. Explain the following term: 1) Volume capacity ratio 2) Isolated intersection 3) Signal cycle time	**03**
Q.3	**(a)**	i. What is DHV	**03**
		ii. Weaving length	**04**
	(b)	i. Location of traffic signs	**03**
		ii. Parking techniques	**04**
		OR	
Q.3	**(a)**	1) Merging –diverging flow	**03**
		2) Advantages-disadvantages of traffic signals	**04**
	(b)	What purposes are served by vertical curves? Explain calculations of summit curve length with sketches.	**07**
Q.4	**(a)**	Write purposes to provide road signs. Discuss classification of road signs with minimum 5 types with sketches for each category.	**07**
Q.4	**(b)**	Design the signal timings for a right angled intersection of two roads. Road A has four lanes with a total width of 12.0 m and road B has two lanes with a total width of 6.6 m. The volume of traffic approaching the intersection during design hour are 900 and 743 pcu/hr on the two approaches of road A and 278 and 180 pcu/hr on the two approaches of road B.	**07**
		OR	
Q.4	**(a)**	Write the warrants laid down by IRC to install signal at any intersection. Explain co-ordinated signal system.	**07**
	(b)	Explain travel forecasting techniques.	**07**
Q.5	**(a)**	Discuss the role of simulation in traffic engineering design.	**07**
	(b)	Discuss about environmental impact of traffic.	**07**
		OR	
Q.5	**(a)**	What is the need of traffic management? Discuss about TSM techniques.	**07**
	(b)	What is parking demand and supply? Write principles of parking design. Calculate parking load factor for vehicles arrival rate of 100 veh/hr. Mean parking duration is 30 minutes.	**07**

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