

GUJARAT TECHNOLOGICAL UNIVERSITY**M.E Sem-I Regular Examination January / February 2011****Subject code: 711302N****Subject Name: Traffic Engineering- 1****Date: 01 /02 /2011****Time: 02.30 pm – 05.00 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) Explain the relation between Traffic flow, Speed and Density with the graphical representation. **07**

(b) A section of highway is known to have free-flow speed of 88.5 km/hr and a capacity of 3300 veh/hr. In a given hour, 2100 vehicles were counted at specified point along this highway section. If the linear speed-density is assumed, Estimate the space mean speed of these 2100 vehicles. **07**

Q.2 (a) Explain in detail the various road user characteristics and its importance in traffic engineering. **07**

(b) Vehicle time headway and spacing's were measured at a point along a highway, from a single lane, over the course of an hour. The average values were calculated as 2.5 second/vehicle for head way and 61meter/vehicle for spacing. Calculate the average speed of traffic. **07**

OR

(b) The speeds of the following 5 vehicles shown in Table are measured with radar at the midpoint of a 1 km section of road way. Assume all vehicles are travelling with the constant speed over this road section. Calculate the time mean speed and space mean speed. **07**

Vehicle No.	Speed (km/hr.)
1	70
2	68.4
3	82.2
4	78.8
5	74

Q.3 (a) What is Level of Service? How the level of services are categorized as per IRC Write the factors which affect the capacity of Highway. **07**

(b) Differentiate Rotary Junction, Signalized Intersection, and grade separator intersection. **07**

OR

Q.3 (a) What are the various road marking commonly used? What is the use of each? **07**

(b) Derive the relation between time mean speed and space mean speed. **07**

Q.4 (a) Describe the method to collect the required parameters to establish the fundamental parameters diagram (speed, flow, density) of the particular road segment.. **07**

(b) What is spot speed? How the spot speed survey is conducted? What are the significances of the spot speed data collection? **07**

OR

- Q.4** (a) How the saturation flow at intersection can be determined on the field? What is the saturation flow rate suggested by IRC? **07**
- (b) How the road accident data is prepared? What are the measures to control accidents? **07**
- Q.5** (a) Briefly explain the need for parking survey. **07**
Define (i) Parking Accumulation
(ii) Parking Volume
(iii) Parking Load
(iv) Parking Index
(v) Parking Turnover
- (b) What is road safety audit? How the road safety audit report is prepared? **07**
- OR**
- Q.5** (a) What is Origin Destination survey? How it is conducted? What are the applications of OD survey? **07**
- (b) Comment “Pedestrian facilities in the Indian cities are not given proper justification in planning” **07**
