

GUJARAT TECHNOLOGICAL UNIVERSITY
M. E. - SEMESTER – I • EXAMINATION – WINTER 2012

Subject code: 711902N**Date: 09-01-2013****Subject Name: Traffic Engineering and Field Studies****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) Give definitions of Traffic Engineering. Explain areas of transportation included or excluded in the definitions. **07**
- (b) Explain traffic control and operations for urban highways. **07**

- Q-2** (a) Define traffic volume. Give time based classification of traffic volume with their specific applications. **07**
- (b) Explain with appropriate sketches traffic volume data presentation for (i) Trends **07**
(ii) daily variation (iii) Intersection and (iv) traffic flow maps.
- (b) Why permanent counters for volume counts are required? Explain 30th highest hourly volume and its significance. **07**

- Q-3** (a) What are the applications of O-D survey results? Explain with necessary sketch the steps involved in O-D survey for hypothetical city. **07**
- (b) Enlist methods of O-d survey and explain with required observation tables any in details. **07**

OR

- Q-3** (a) Define the following terms: **07**
Speed, Spot Speed, Mean Speed, Space-mean Speed, Concentration, space headway, Time headway.
- (b) Enlist application of spot speed data. With the help of sketches explain basic relation Speed – Flow – Density in traffic engineering. **07**
- Q-4** (a) What are the applications of Travel Time and delay data? Enlist causes of delays. **07**
- (b) From the following spot-speed data prepare histogram, frequency distribution curve and cumulative distribution curve. How many vehicles are travelling speed higher than 85th percentile? **07**

40	35	49
60	25	65
40	22	64
54	24	66
44	30	71
30	45	75
43	50	70
56	42	79
35	65	54
55	35	69
63	38	74

- Q-4** (a) Define terms: Capacity, Ideal Capacity, Possible capacity, Fractional capacity. Which are the factors affecting roadway capacity? **07**
- (b) Explain Level of Service (LOS) concept with sketches. **07**

- Q-5** (a) Write Advantages and Disadvantages of traffic signals. **07**
(b) At right angled intersection of two roads, both have two lanes. The volume of traffic approaching the intersection during design hours are 800 and 700 PCU/hr on the two approach of road – 1, and 380 and 310 PCU/hr on the two approaches of road – 2. Design the signal timings and draw phase diagram. **07**
- Q-5** (a) Write note: (i) On street parking **07**
(ii) Off-street parking.
(b) Write note: (i) Informatory signs. **07**
(ii) Pavement Markings.
