

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**ME Semester –I Examination Feb. - 2012**

Subject code: 711902N

Date: 13/02/2012

Subject Name: Traffic Engineering &amp; Field Studies

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) Enlist and explain statistical parameters estimated from spot-speed data. Also write the most suitable time for conducting spot speed studies. **07**
- (b) Sketch and explain the relationship between **07**
1. Speed and volume
  2. Speed and flow
- Write the difference between volume and flow.
- Q.2** (a) Explain following terms in brief: **07**
1. Trip
  2. Route
  3. Occupancy count
  4. ADT
  5. Parking Index
  6. O-D Matrix
  7. Lane capacity
- (b) Enlist factors affecting roadway capacity. Write ideal capacity values for urban roads for **07**
1. 2 lane two way
  2. 3 lane one way
  3. 4 lane two way
- OR**
- (b) I. Calculate parking load for vehicles. Arrival rate is 100 veh/hr. Mean parking duration is 30 min. **03**
- II. Write short note on multilevel parking **04**
- Q.3** (a) What are the causes of delay? Explain intersection delay studies. **07**
- (b) Write in brief : **07**
- 1) Problems and challenges to traffic engineering
  - 2) Use of advanced techniques in traffic engineering.
- OR**
- Q.3** (a) Explain about various traffic control devices. **07**
- (b) Discuss about traffic characteristics. **07**
- Q.4** (a) 1) Desire line diagram **04**
- 2) Type of data collected in O-D survey. **03**
- (b) Explain types and concept of LOS with sketch. **07**

**OR**

- Q.4 (a)** What is parking demand and supply? Discuss about various methods of parking studies. **07**
- (b)** Explain traffic volume count survey at 4 leg intersection with sketch and format for survey. **07**
- Q.5 (a)**
- 1) Write short note on traffic administration **03**
  - 2) Advantages and disadvantages of traffic signal. **04**
- (b)** The data collected from speed and delay survey by moving car method on an urban road of 3.0 km length is tabulated as below. **07**

Trip No.	Dire. of trip	Journey Time Min.Sec.	Total stopped delay Min.Sec.	No. of vehicles		
				Over taking	Over taken	From opp. direction
1	N-S	6-32	1-40	4	7	268
2	S-N	7-14	1-50	5	3	186
3	N-S	6-50	1-30	5	3	280
4	S-N	7-40	2-00	2	1	200
5	N-S	6-10	1-10	3	5	250
6	S-N	8-00	2-22	2	2	170
7	N-S	6-28	1-40	2	5	290
8	S-N	7-30	1-40	3	2	160

Calculate :

- 1) Average volume
- 2) Average journey journey time
- 3) Average journey journey speed
- 4) Average stopped delay
- 5) Average running time
- 6) Average running speed

**OR**

- Q.5 (a)** Write about various methods of traffic volume study with their advantages and limitations. **07**
- (b)** Explain various methods of spot speed survey. **07**

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