Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

ME Semester –I Examination Feb. - 2012

Subject code: 711302N **Date: 13/02/2012**
Subject Name: Traffic Engineering-I
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)** Explain vehicular characteristics **07**

(b) The driver of a vehicle traveling at 70 kmph requires 12 m less to stop after applying brakes up a grade, than when traveling down the same grade. If the coefficient of friction is 0.50, calculate the percent of the gradient and the braking distance on the down grade. **07**

Q.2 **(a)** Explain the relationship of basic flow parameters with neat sketch. **07**

(b) The following is the density-speed data obtained. **07**

Density (x)	Speed Kmph (y)
10	70
20	60
30	55
40	50
50	40
60	30
70	25
80	22
90	10
100	8

Plot the scatter diagram. Determine the regression equation and find multiplying and additive constant.

OR

(b) Explain Greenshield's speed – density model with sketch. **07**

Q.3 **(a)** Following table shows the data collected through a traffic study for the spot speed. Calculate the following **07**

(i) Modal speed (ii) Median speed (iii) Time mean speed
(iv) Speed to be used in geometric design
(v) speed for the traffic regulation

Speed class (Kmph)	No. of vehicles observed
6-10	5
11-15	10
16-20	22
21-25	30
26-30	38
31-35	50
36-40	20
41-45	14
46-50	7
51-55	4

(b) Define - Spot speed, Space mean speed, Time mean speed, Design speed, Journey speed, Operating speed, Delay **07**

OR

Q.3 **(a)** What are the purposes of delay study? Explain License Plate method of delay study. **07**

(b) Describe Roadside Interview Method of O D survey. **07**

Q.4 **(a)** Explain types of parking with sketch. Describe the requirement of parking as per IRC recommendations for each category of vehicles. **07**

(b) Explain the preventive measures for accidents in an urban area. **07**

OR

Q.4 **(a)** What do you understand by Level of Service? Explain LOS for uninterrupted flow on rural highways. **07**

(b) What are the basic principles of designing an intersection? Explain. **07**

Q.5 **(a)** Explain types of signs with neat sketch. **07**

(b) What are the functions of traffic signal at intersection? Explain. **07**

OR

Q.5 **(a)** Explain Cloverleaf Interchange with neat sketch. **07**

(b) What are the methods of controlling on street parking? Explain. **07**

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