Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – WINTER 2013

Subject Code: 170604 **Date: 28/11/2013**

Subject Name: Urban Transportation System

Time: 10:30 TO 01:00 **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 a flow diagram " Transportation Planning Process" with sketch. **7**

(b) Define "Urban Areas" and "Rural Areas". Explain types of urban roads by drawing sketch. **7**

Q-2 (a) Enlist the methods of trip generation analysis. Explain zonal regression analysis in detail **7**

(b) Develop the trip generation equation from the following data. **7**

No. of persons in house hold	Vehicle ownership	Trips per day
5	2	4
4	2	4
3	2	3
1	0	2
2	1	1
6	3	7
8	3	9
9	4	8

OR

(b) Explain :- Environment-Land use and Transportation (ELT) with sketch of urban system. **7**

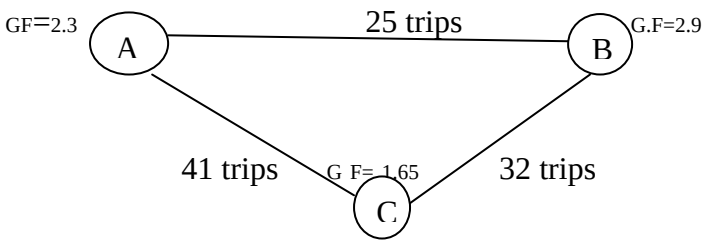
Q.3 (a) Explain different levels of urban Transportation Planning stages of with sketch. **7**

(b) Enlist the different types of road patterns. Draw neat sketch of Rectangular and Circular road pattern. **7**

OR

Q-3 (a) Define :- (i) Interzonal trips (ii) Land use (iii) Desire line (iv) Base year (v) Horizon year (vi) Study area (vii) CBD **7**

(b) The three zones A, B and C are shown in the figure with trip interchanges. Using Fratar method, compute the zonal interchanges for the forecast year. **7**



Q.4 (a) What are the limitations of Growth Factor methods for trip distribution analysis? Explain Gravity model with formula. **7**

(b) A self contained city having four residential area A, B, C and D, Two industrial estates X and Y, the generation equation shows that trips from home to work from each residential area are given below during 24 hours per day. There are 3690 jobs in X zone and 4495 jobs in Y zone. It is also known that attraction between zones is inversely proportional to square of journey times between zones. The journey time is mentioned below. **7**

Zones	X	Y
A	14	19
B	16	11
C	9	11
D	14	21

Calculate the inter zonal trips for home to work by Gravity Model.
A = 1,000; B=2,245; C=1,750; D=3,190

OR

Q. 4 (a) (i) Explain private travel and para transit. **7**
(ii) Explain by giving formula for transit line capacity

(b) Explain the line capacity of rapid transit line. **7**

Q. 5 (a) Explain Trips end model and Trip interchange model with formula. **7**

(b) The design year total persons trip between four zones distributed are shown in table. Modal splits show that 65/35 private cars Vs Public transport as overall split. The peak period occupancies are 2.1 persons per car and 49 persons per bus. If the goods vehicles constitutes about 21% of total vehicle trips. Develop the trip matrix fortwo modes **7**

D / O	A	B	C	D
A	--	1688	390	1980
B	280	--	475	505
C	410	1225	--	1425
D	190	255	435	--

OR

Q-5 (a) What is corridor? Explain by drawing sketch typical corridor components. **7**

(b) Enlist the factors affecting the Route choice. Explain TRC trip assignment model. **7**

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