Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- VIIth SEMESTER–EXAMINATION – MAY/JUNE- 2012

Subject code: 170604 **Date: 29/05/2012**

Subject Name: Urban transportation system

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.**

<table>
<tr><td>Q.1</td><td>(a)</td><td>What are the goals and objectives of urban transportation planning? Describe in detail.</td><td>07</td></tr>
<tr><td></td><td>(b)</td><td>Describe the basic structure of transportation systems (an overview)</td><td>07</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Q.2</td><td>(a)</td><td>Explain by drawing flow chart various steps involved in transportation planning process.</td><td>07</td></tr>
<tr><td></td><td>(b)</td><td>What are the factors responsible for travel demand explain in detail.</td><td>07</td></tr>
<tr><td></td><td></td><td>OR</td><td></td></tr>
<tr><td></td><td>(b)</td><td>1 Explain following terms with the help of sketch (i) cordon line (ii) intra zonal trips (iii) interzonal trips (iv) screen line(v) Desire line
2. Define: - urban settlement, rural settlement.</td><td>07</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Q.3</td><td>(a)</td><td>Explain with example category analysis for trip generation analysis.</td><td>07</td></tr>
<tr><td></td><td>(b)</td><td>Table shows data for vehicle trips per day, as related to income and persons in house hold for one zone of study area develop trip generation equation and find which model is more reliable
<table>
<tr><th>Income in thousands</th><th>Persons in house hold</th><th>Trips per day</th><th>remarks</th></tr>
<tr><td>48</td><td>3</td><td>2</td><td></td></tr>
<tr><td>98</td><td>5</td><td>4</td><td></td></tr>
<tr><td>140</td><td>7</td><td>6</td><td></td></tr>
<tr><td>190</td><td>6</td><td>4</td><td></td></tr>
<tr><td>240</td><td>9</td><td>5</td><td></td></tr>
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</table></td><td>07</td></tr>
<tr><td></td><td></td><td>OR</td><td></td></tr>
<tr><td>Q.3</td><td>(a)</td><td>What are methods of origin and destination study? Explain home interview method in detail.</td><td>07</td></tr>
<tr><td></td><td>(b)</td><td>Explain by drawing curve accuracy is checked by screen line analysis of O & D studies data</td><td>07</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Q.4</td><td>(a)</td><td>Enlist the different methods of trip distribution methods explain in detail average growth factor method.</td><td>07</td></tr>
</table>

(b) A study area has been divided into four zones 1,2,3,4 the present trip distribution matrix is given total future trip produced and attracted develop future trip distribution matrix **07**

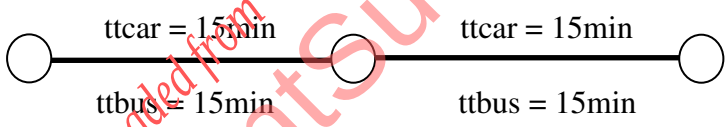
D / O	1	2	3	4	Total present produced	Total future trips
1	-	45	55	35	135	300
2	45	-	65	25	125	375
3	20	60	-	45	125	280
4	55	70	35	-	160	225
Total present attracted trips	120	175	155	105	545	-
Total future attracted trips	210	475	335	160	-	1180

Develop future trip distribution matrix using (i) uniform growth factor (ii) average growth factor (iii) Detrit method.

OR

Q.4 **(a)** 1 What are the factors influencing on individual choice of travel mode **03**
2 Describe in brief trip inter change and trip end model. **04**

Q.4 **(b)** The probability of choosing the car mode (P_c) is found to be given $P_c=1/(1+e^{-u(x)})$. Where, $u(X)=0.70-0.04(tt_{car} - tt_{bus})$ **07**



the total trip exchanges between zones are as follows. Determine the two way volume in cars per day on the roads AB and BC and if the average car occupancy is 2.6

From	To	Persons trips per day
A	B	1200
B	A	0
A	C	800
C	A	1600
B	C	900
C	B	800

Q.5 **(a)** Explain Mass transit system and Mass rapid transit system **07**
Also explain capacity of rapid transit system.

(b) Briefly explain the Moore's algorithm of route assignment analysis. **07**

OR

Q.5 **(a)** How will you identify potential corridor in urban road transit system. Explain segment capacity. **07**

(b) Explain aggregate and disaggregate approaches to travel demand. **07**

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