

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE- SEMESTER-VI EXAMINATION – WINTER 2025**

**Subject Code:3160608**

**Date:29-11-2025**

**Subject Name:Urban Transportation Planning**

**Time:02:30 PM TO 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.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS																						
<b>Q.1</b>	(a) State the social functions of transportation	<b>03</b>																						
	(b) Differentiate between Goals and Objectives.	<b>04</b>																						
	(c) Explain various steps involved in transportation planning.	<b>07</b>																						
<b>Q.2</b>	(a) Describe factors affecting travel demand.	<b>03</b>																						
	(b) Explain the causes and impacts of urbanization in brief.	<b>04</b>																						
	(c) Describe major problems in urban transportation.	<b>07</b>																						
<b>OR</b>																								
	(c) Explain LRTS with advantages and disadvantages.	<b>07</b>																						
<b>Q.3</b>	(a) Define (1) CBD (2) origin (3) study area.	<b>03</b>																						
	(b) Enlist Various methods of O-D survey. Explain road side interview method.	<b>04</b>																						
	(c) Explain Lowry land use model.	<b>07</b>																						
<b>OR</b>																								
<b>Q.3</b>	(a) Explain intermediate public transportation in brief.	<b>03</b>																						
	(b) Define zone. What are the points to be kept in mind while doing the zoning?	<b>04</b>																						
	(c) What is sampling? Explain various types of sampling.	<b>07</b>																						
<b>Q.4</b>	(a) Enlist various methods of trip generation analysis. Explain category analysis in brief.	<b>03</b>																						
	(b) Define trip. Describe the factors affecting trip production.	<b>04</b>																						
	(c) Explain Gravity model for trip distribution in detail.	<b>07</b>																						
<b>OR</b>																								
<b>Q.4</b>	(a) State advantages and disadvantages of BRTS.	<b>03</b>																						
	(b) Explain in brief the factors affecting modal split.	<b>04</b>																						
	(c) Develop the trip generation equation using linear regression for the following data. What would be the coefficient of determination? Also, find out the number of trips generated if number of workers in HH is 10.	<b>07</b>																						
<table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="padding: 2px;">No. of workers in HH</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">4</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">5</td> <td style="padding: 2px;">6</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">4</td> <td style="padding: 2px;">2</td> </tr> <tr> <td style="padding: 2px;">Trips per day</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">4</td> <td style="padding: 2px;">7</td> <td style="padding: 2px;">8</td> <td style="padding: 2px;">4</td> <td style="padding: 2px;">12</td> <td style="padding: 2px;">14</td> <td style="padding: 2px;">7</td> <td style="padding: 2px;">5</td> <td style="padding: 2px;">2</td> </tr> </table>			No. of workers in HH	1	2	3	4	2	5	6	3	4	2	Trips per day	2	4	7	8	4	12	14	7	5	2
No. of workers in HH	1	2	3	4	2	5	6	3	4	2														
Trips per day	2	4	7	8	4	12	14	7	5	2														
<b>Q.5</b>	(a) Explain various factors affecting route assignment in brief.	<b>03</b>																						
	(b) Describe corridor components with neat sketch.	<b>04</b>																						
	(c) Classify and explain urban roads with neat sketch.	<b>07</b>																						

**OR**

- Q.5** (a) State the problems in urban goods movement. **03**  
(b) Describe the components of urban goods movement **04**  
(c) Explain various urban forms with neat sketch **07**

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**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE- SEMESTER-VI (NEW) EXAMINATION – WINTER 2024**

**Subject Code:3160608**

**Date:12-12-2024**

**Subject Name: Urban Transportation Planning**

**Time:02:30 PM TO 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.
4. Simple and non-programmable scientific calculators are allowed.

	<b>MARKS</b>
<b>Q.1</b> (a) Define: Mobility, Accessibility, Urban area	<b>03</b>
(b) Explain Para transit mode of transportation.	<b>04</b>
(c) Explain problem in urban transportation in the present scenario of high vehicle ownership.	<b>07</b>
<b>Q.2</b> (a) Describe the components of urban goods movement	<b>03</b>
(b) What are the factors affecting urban goods movement?	<b>04</b>
(c) Classify urban mass transit system based on transit technology. Explain Bus rapid transit system in detail.	<b>07</b>
<b>OR</b>	
(c) Explain sequential decision-making process in travel demand analysis with neat sketch.	<b>07</b>
<b>Q.3</b> (a) What are the various types of checks for transport surveys? Explain in brief screen line check.	<b>03</b>
(b) Write a short note on Zoning.	<b>04</b>
(c) Enlist various transportation surveys. Explain Home interview survey in detail.	<b>07</b>
<b>OR</b>	
<b>Q.3</b> (a) Define (1) Intrazonal zonal trip (2) Interzonal trip (3) Through trip	<b>03</b>
(b) Write a short note on Sampling.	<b>04</b>
(c) Explain Gerin Lowry land use model.	<b>07</b>
<b>Q.4</b> (a) Write short note on Trip generation.	<b>03</b>
(b) Differentiate between trip end models and trip interchange models.	<b>04</b>
(c) Briefly explain Gravity model with suitable example.	<b>07</b>
<b>OR</b>	
<b>Q.4</b> (a) State advantages of category analysis.	<b>03</b>
(b) Describe the factors affecting trip generation.	<b>04</b>
(c) Enlist different trip distribution models. Explain growth factor models.	<b>07</b>
<b>Q.5</b> (a) Write a short note on route classification.	<b>03</b>
(b) What is modal split? Discuss the factors affecting modal split.	<b>04</b>
(c) Classify and explain various types of urban road pattern.	<b>07</b>
<b>OR</b>	
<b>Q.5</b> (a) What do you understand by transit scheduling?	<b>03</b>
(b) Briefly explain zonal regression method of trip generation	<b>04</b>
(c) Explain corridor identification and corridor screen line analysis.	<b>07</b>

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**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2023****Subject Code:3160608****Date:18-12-2023****Subject Name:Urban Transportation Planning****Time:02:30 PM TO 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.
4. Simple and non-programmable scientific calculators are allowed.

		<b>Marks</b>												
Q.1	(a) Define: 1) Goal 2) Mobility 3) Hamlet	03												
	(b) Discuss various urban class groups?	04												
	(c) Define urban area? State the reasons of urbanization. Discuss merits and demerits of urbanization.	07												
Q.2	(a) Define: 1) Load factor 2) Urban Structure 3) Rural area	03												
	(b) Explain transportation system management (TSM) strategies.	04												
	(c) Elaborate the BRTS. Write advantages and disadvantages of it.	07												
	OR													
	(c) Discuss the factors responsible for travel demand. Explain in detail.	07												
Q.3	(a) Write short note on : Network identification and Coding of the zone.	03												
	(b) Discuss the points to be kept in mind while doing zoning.	04												
	(c) Enlist the methods of origin and destination study. Explain home interview method in detail.	07												
	OR													
Q.3	(a) Give the uses of O & D study.	03												
	(b) Explain various survey data checks.	04												
	(c) Explain in brief - License plate survey method.	07												
Q.4	(a) Define: 1) Cordon line 2) Trip 3) Land use	03												
	(b) Write short note on : Diversion curve method.	04												
	(c) Describe Gravity model with formula showing each parameters.	07												
	OR													
Q.4	(a) Define: 1) Base year 2) Screen Line 3) Desire line	03												
	(b) Write short note on : All - or - nothing assignment method.	04												
	(c) The following data shows average household size and total trips made per day for a particular zone of study area. Develop the trip production equation and check its validity.	07												
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Average Household size</th> <th style="text-align: center;">Total trips made per day</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">4</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">6</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">7</td> </tr> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;">8</td> </tr> <tr> <td style="text-align: center;">6</td> <td style="text-align: center;">10</td> </tr> </tbody> </table>	Average Household size	Total trips made per day	2	4	3	6	4	7	5	8	6	10	
Average Household size	Total trips made per day													
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6	10													
Q.5	(a) Explain Logit model analysis in brief.	03												
	(b) Explain any one growth factor models for trip distribution.	04												
	(c) Describe briefly : Corridor identification and corridor screen line analysis.	07												
	OR													
Q.5	(a) Explain in brief, with neat figure – Corridor.	03												
	(b) Define route assignment and Discuss the factors affecting route assignment.	04												
	(c) Define urban forms. Describe the characteristics of each related to the transportation planning.	07												

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI(NEW) EXAMINATION – WINTER 2022****Subject Code:3160608****Date:20-12-2022****Subject Name:Urban Transportation Planning****Time:02:30 PM TO 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.
4. Simple and non-programmable scientific calculators are allowed.

**MARKS**

- Q.1** (a) Define: Mobility, Accessibility, Through Trip **03**  
 (b) Draw a flow chart and explain various steps involved in transportation. **04**  
 (c) Discuss the levels of urban transportation planning with neat sketch. **07**

- Q.2** (a) Briefly explain urban class group. **03**  
 (b) What is zoning? Discuss the points to be kept in mind while doing zoning. **04**  
 (c) What are the applications of O-D survey data? Enlist different methods of conducting O.D survey and explain any one in detail stating its advantages and disadvantages. **07**

**OR**

- (c) Discuss the various growth factor methods with their advantages and Disadvantages. **07**

- Q.3** (a) Explain the terms: Screen line checks and Cordon line checks. **03**  
 (b) Explain role of transportation at national, regional and urban level. **04**  
 (c) Define Trip. Explain the various factors governing the rate of trip generation and Trip attraction. **07**

**OR**

- Q.3** (a) Write a short note on Travel demand forecasting. **03**  
 (b) What is urbanization? Discuss merits and demerits of urbanization. **04**  
 (c) Briefly explain urban mass rapid transit system with their advantages and disadvantages. **07**

- Q.4** (a) Write short note on All or nothing assignment method. **03**  
 (b) What is BRTS? Write advantages and disadvantages of it. **04**  
 (c) The following data shows average household size and total trips made per day for a particular zone of study area. Develop the trip production equation and check its validity. **07**

Average household size	2	3	4	5	6
Total Trips made per day	4	6	7	8	10

**OR**

- Q.4** (a) Write short note on Diversion curve method. **03**  
 (b) What is sampling? Discuss various type of samplings **04**

- (c) The distribution of present trips among the zones A, B and C are given in O-D matrix below. The future trips generated ( $T_i$ ) are also given in the last column. Distribute the future trips among the zones using uniform growth factor method. **07**

O \ D	A	B	C	$T_i$
A	60	100	200	360
B	100	20	300	1260
C	200	300	20	3120

- Q.5 (a)** Define urban area and rural area. **03**  
**(b)** Write a short note on Urban Goods Movement. **04**  
**(c)** Explain basic road patterns in the urban area with the help of sketches. **07**

**OR**

- Q.5 (a)** Enlist and explain the objectives of Transportation planning. **03**  
**(b)** Describe corridor identification and screen line identification. **04**  
**(c)** What do you mean by Para-transit? Explain the various types of Para-transit. **07**

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