

Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering - SEMESTER - VI EXAMINATION - SUMMER 2025

Subject Code: 3164017

Date: 30-05-2025

Subject Name: Urban Transport System Planning

Time: 10:30 AM TO 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.

	Marks
Q.1 (a) What is the transportation planning? Which are the objectives of the transportation planning?	03
(b) Explain the problems in the urban transportation in the present scenario of high vehicle ownership.	04
(c) Which are the different levels of urban transportation planning stages? Explain in detail.	07
Q.2 (a) What are the factors which responsible for travel demand?	03
(b) Explain private travel and paratransit.	04
(c) Write about the characteristics, capacity and route planning of Bus Mass Transit system.	07

OR

(c) Describe in detail : Urban mass-transit coordination.	07
Q.3 (a) What is the purpose of travel demand modelling in urban transportation planning?	03
(b) Why are Traffic Analysis Zones important in travel demand modelling?	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 house hold size	Total trip made per day
2	4
3	6
4	7
5	8
6	10

OR

(a) What is trip generation? What are the methods for trip generation?	03
(b) Which are the different factors affecting the route choice? Explain TRC trip assignment model.	04

(c) What are methods of origin and destination study? Explain home interview method in detail. 07

Q.4 (a) Differentiate between trip-end and trip-interchange type modal split models. 03

(b) In which scenarios is SP data more useful than RP data in transport modeling? 04

(c) Enlist different growth factor models for trip distribution, explain any one in detail. 07

OR

(a) Explain a Logit Model? 03

(b) Define route choice behavior. What factors influence a traveler's selection of a specific route? 04

(c) The trip distribution matrix for design year for 4 zones of a study area is as below: 07

O \ D	1	2	3	4
1	-	1500	400	2000
2	300	-	450	480
3	400	1200	-	1420
4	200	250	430	-

The model split analysis between private vehicle and public transport vehicle is 60/40 as an overall split. The peak period vehicle occupancy is 1.8 persons for private vehicle CAR and 50 persons for public transport vehicle BUS. Develop the trip matrix for both modes showing car trips and bus trips in design year.

Q.5 (a) What are the difference between routing and scheduling in transit planning? 03

(b) Write the direct and indirect benefits considered in economic evaluation of transit infrastructure? 04

(c) Which are transit system performance parameters? Why are they important in evaluating public transport? 07

OR

(a) What are the stages in the construction of an urban metro rail project? 03

(b) Write about the environmental impacts of urban mass transit systems? How are they assessed? 04

(c) Explain the Transportation System Management (TSM)? What are the primary goals of TSM strategies? 07
