

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2018****Subject Code:2160608****Date:07/12/2018****Subject Name:Urban Transportation system****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.

- Q.1** (a) Briefly explain urban class group. **03**
 (b) Define the following: **04**
 (i.) Study area (ii.) Cordon Line (iii.) Screen Line (iv.) Trip Generation
 (c) Discuss the levels of urban transportation planning with neat sketch. **07**

- Q.2** (a) Explain the concept of Mobility and Accessibility. **03**
 (b) Explain the system used for coding of the zones. **04**
 (c) What do you mean by Para-transit? Explain the various types of Para-transit. **07**

OR

- (c) Briefly explain urban mass rapid transit system with their advantages and disadvantages. **07**

- Q.3** (a) Explain the terms: Screen line checks and Cordon line checks. **03**
 (b) Briefly explain home interview survey. **04**
 (c) Define Trip. Explain the various factors governing the rate of trip generation and trip attraction. **07**

OR

- Q.3** (a) What is Trip distribution? Enlist the various methods used for trip distribution **03**
 (b) Develop the trip production equation and calculate all the relevant statistics to check the validity of the equation using the following data: **04**

Household size	2	3	4	5	6
Trips per Day	4	5	7	10	10

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

- Q.4** (a) A Study area is divided into four zones 1, 2, 3 and 4. The present trip distribution and future trips are mentioned in the following matrix: **03**

O \ D	1	2	3	4	Present Trips	Future Trips
1	---	50	60	40	150	300
2	40	---	50	30	120	360
3	30	60	---	40	130	325
4	50	40	60	---	150	225
Present Trips	120	150	170	110	---	
Future Trips	240	450	340	180		1210

Develop the future trip distribution matrix by Average growth factor method.

- (b) Using the Data of Q.4 (a), Develop the future trip distribution matrix by Detroit method. **04**
 (c) Explain Gravity Model with its calibration. **07**

OR

- Q.4** (a) What is modal split? Explain the factors affecting modal split. **03**

- (b) Differentiate trip end modal split and trip interchange modal split. **04**
- (c) In a zone A, car drivers produce work trips amounting to 2000 trips. It is desired to distribute these trips to zones A, B, C and D with following characteristics: **07**
- Zone A- Has 1000 work trips attracted and a travel time of 11 minutes.
- Zone B- Has a travel time of 20 minutes and attracts 700 work trips.
- Zone C- Attracts work trips of 6000 and has a travel time of 23 minutes.
- Zone D- Has 3000 work trips attracted with a travel time of 25 minutes.
- Travel time include the terminal time and walking time as well.

The travel time factors applicable to the journey as given in the table below:

Travel time	1	5	7	11	16	18	20	23	25
F factor of TT	200	120	100	80	61	52	49	45	39

- Q.5** (a) Briefly explain Logit Analysis. **03**
- (b) Show the various types of urban structures with the help of neat sketches. **04**
- (c) What do you understand by route assignment? Explain various traffic assignment techniques briefly. **07**

OR

- Q.5** (a) Differentiate between TSM and long range planning. **03**
- (b) Classify the various types of urban road patterns with the help of neat sketches. **04**
- (c) Explain corridor identification and screen line analysis. **07**

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