

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – I • EXAMINATION – WINTER 2012****Subject code: 711301N****Date: 08-01-2013****Subject Name: Urban Transportation System Planning****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.

- Q.1** (a) Explain 'Urban system' and transportation by showing 'ekestic grid.' **07**
 (b) Explain drawing flow chart " transportation policy making " **07**

- Q.2** (a) Define the terms:- (i) links (ii) Terminals (iii) Ubiquity (iv) Mobility **07**
 (v) Accessibility (vi) CBD (vii) Land use
 (b) Explain by drawing sketch ' suburban street network' **07**

OR

- (b) Give different urban transportation modes at urban level. Give comparison also **07**

- Q.3** (a) A land use zone consists of 1980 single family homes, 502 apartments, and 3 hotels with 580 rooms in each hotel Calculate daily vehicular trips generated using following equations **07**

$$ts = 5 + 7.36U_s$$

$$ts = 7 + 6.3U_a$$

$$ts = 1.8 + 12U_h$$

subscripts s, a and h refers home apartments and hotels t and U refers trips and housing units give comments on results

- (b) Explain trip interchange model with example of Toronto Canada model **07**

OR

- Q.3** (a) What is the demand responsive transportation system? Give example of any urban place. **07**
 (b) Describe the gravity model by giving formula also explain each parameters. **07**

- Q.4** (a) A four zone city has following characteristics **10**

Zone	Total existing population	Holding capacity(acres)
1	3100	311
2	2600	282
3	9050	505
4	4650	355

Travel time in minutes

i to j	1	2	3	4
1	5	10	12	16
2	10	4.5	9	13
3	12	09	04	13
4	16	13	13	06

Exponent 2.1 can be assumed on base of work done on other city, the population is likely grow at 15% rate in 15 years What would be the Percentage change in population distribution?

- (b) Explain the average growth factor and Detroit method for trip **04**

Distribution method.

OR

- Q.4 (a)** What are the methods of route assignment? Explain any one. **07**
(b) Explain the logit model of mode choice. **07**

- Q.5 (a)** Describe properties of good route set for urban public transport system. **07**
(b) Give the schematic diagram of transportation planning process. **07**

OR

- Q.5 (a)** Explain with formula Hansen Accessibility model with all parameters. **04**
(b) The data for shopping trips to shopping sites in various parts of city are recorded as below given details. Calculate shopping trip rates by location type. Also discuss your results. **10**

zone	Location type	No of employees	No of shopping trips
1	CBD	3000	7200
2	CBD	1400	2500
3	Shopping centre 1	3000	6000
4	Shopping centre 2	1400	12000
5	Local centre 1	15	50
6	Local centre 2	50	140
7	Local centre 3	85	300
8	Local centre 4	105	380
