Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) - EXAMINATION – SUMMER 2016

Subject Code:2160608 **Date:19/05/2016**

Subject Name: Urban Transportation system

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.**

Q.1 **(a)** What is Urbanization? State the reasons of Urbanization. Discuss merits and demerits of urbanization. **07**

(b) List out the different drawbacks of transportation. Explain in brief. **07**

Q.2 **(a)** Explain the problems in the urban transportation in the present scenario of high vehicle ownership. **07**

(b) Which are the methods of O-D Survey? Describe in detail any one method which provides detailed information. **07**

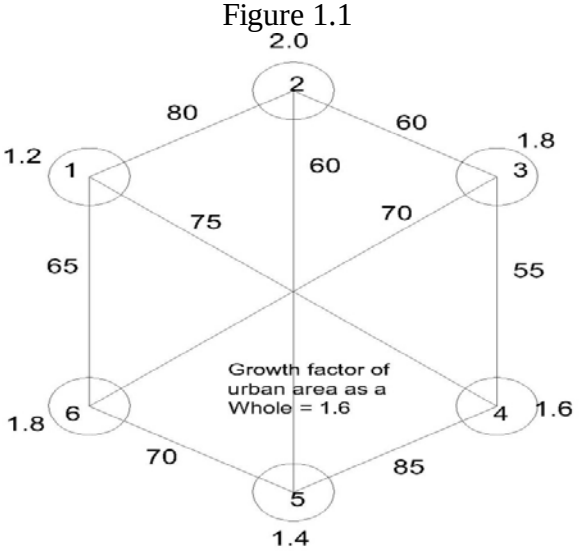
OR

(b) What is zoning? Discuss the points to be kept in mind while doing zoning. **07**

Q.3 **(a)** Explain different levels of urban Transportation Planning stages of with sketch. **07**

(b) The overall growth factor of the area along with the growth factor of individual zones and present trip distribution numbers are shown in figure below. Using Uniform, average and Detroit method distribute the trips to the various zones. **07**

Figure 1.1



OR

Q.3 **(a)** Explain Gravity Model. Derive the equation for the trip distribution by gravity model. **07**

(b) A self contained city having four residential area A, B, C and D, Two industrial estates X and Y, the generation equation shows that trips from home to work from each residential area are given below during 24 hours per day. There are 3690 jobs in X zone and 4495 jobs in Y zone. It is also known that attraction between zones is inversely proportional to square of journey times between zones. The journey time is mentioned below. **07**

Zones	X	Y
A	14	19
B	16	11
C	9	11
D	14	21

Calculate the inter zonal trips for home to work by gravity Model.
A = 1,000; B = 2,245; C = 1,750; D = 3,190

Q.4 **(a)** Compare between the BRT and Metro. Find the maximum capacity per hour of BRT and Metro for the frequency of 60 trips per hour on any corridor. **07**

(b) The design year total person trips between 4 zones distributed are shown in the table below. The Modal Split analysis shows 30/70 for private cars vs. public transport, as an overall split. The peak period car occupancy is 2.0 persons per car and 50 persons per bus. **07**

O \ D	A	B	C	D
A	-	1800	600	2200
B	500	-	650	580
C	600	1400	-	1620
D	400	350	630	-

If the goods vehicles constitute @ 18 % of the person vehicle trips, calculate the total vehicle trips.

OR

Q.4 **(a)** (i) Explain private travel and Para transit. **07**
(ii) Explain by giving formula for transit line capacity

(b) What is corridor? Explain by drawing sketch typical corridor components **07**

Q.5 **(a)** Enlist the factors affecting the Route choice. Explain TRC trip assignment model. **07**

(b) Define Urban area. What are the trends in urbanization? Write about urban class groups. **07**

OR

Q.5 **(a)** Write about characteristics of Rail transit. Also, write about capacity, fare structure and route planning for rail transit in brief. **07**

(b) Explain about point, segment, segment capacity and screen line with neat sketches. **07**

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