Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER 2012

Subject code: 711304N **Date: 10/01/2013**

Subject Name: Basics of Transportation engineering

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) What are economic and social functions of transportation briefly describe (7)

(b) Describe the different levels of Urban Transportation Planning (7)

Q.2 (a) Define the terms (i) Trip (ii)spot speed (iii) study area (iv) Base year (v) interzonal trip (vi) screenline (vii) origin and destination (7)

Q.2 (b) Describe the different methods of trip generation analysis , explain zonal regression analysis (7)

OR

(b) The following table is showing present data of trip production and attraction using average growth factor and Detroit method distribute the trips develop trip matrix. (7)

D / O	1	2	3	Present produced trips	Future produced trips
1	45	180	324	549	850
2	140	55	390	585	1050
3	250	95	55	400	900
	435	330	769	Present attracted trips	

Q.3 (a) Explain gravity model with formula (7)

(b) The design year total person trips between four zones are given below the modal split analysis shows that 60/40 private car versus public transport as an overall split during peak hours car occupancy is 1.85 and 52 persons respectively (7)

D / O	1	2	3	4
1	-	1480	410	2100
2	325	-	460	500
3	500	1200	-	1440
4	220	250	425	-

If the goods transport vehicles constitute about 18% of vehicle trips develop the trip matrix of both modes car and buses and total vehicles.

OR

Q.3 (a) Describe road user characteristics (7)

(b) Explain relationship between speed, flow and density by drawing graph. (7)

Q.4 (a) What is the necessity of overlay design? Give types of overlays (7)

(b) What are the types of traffic signs? Draw any three signs (7)

OR

Q.4 (a) Draw the sketch of rigid and flexible pavements showing all layers (7)

(b) Enlist the methods of O& D studies explain in detail license plate method (7)

Q.5 (a) Explain public, private and par transit systems of urban transport (7)

(b) Explain different types of joints in rigid pavements (7)

OR

Q.5 (a) Explain by drawing sketch Equivalent Single Wheel Load (7)

(b) Give comparison of different modes of transportation air, water and surface (7)

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