Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER–IV • EXAMINATION – SUMMER 2015

Subject Code: 741901 **Date: 01/05/2015**

Subject Name: **Multimodal Transportation System Planning & Design**

Time: 2:30 pm to 5:00 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)**	Enlist the measures of Goodness-of-fit.	**07**
	(b)	Write difference between Stated Preference and Revealed Preference surveys..	**07**
Q.2	**(a)**	Explain Rating Data, Rank Data and Choice Data.	**07**
	(b)	Explain with sketch the multimodal interchange station. What are the benefits of MMTS?	**07**
		OR	
	(b)	Describe the planning framework for multimodal transportation system.	**07**
Q.3	**(a)**	Describe advantages and disadvantages of street cars compared to regular bus service.	**07**
	(b)	Write Note on: 1. Metro Rail Transit System (MRTS) 2. Monorails.	**07**
		OR	
Q.3	**(a)**	Explain Applications of ITS in Urban Transportation System as MMTS.	**07**
	(b)	Write Note on: 1. BRTS (Bus Rapid Transit System) 2. LRT (Light Rail Transit)	**07**
Q.4	**(a)**	Explain the integration of modes with respect to network integration, fare integration, information integration, physical integration, operational integration, financial integration, institutional integration for MMTS.	**07**
	(b)	Explain MMTS for Delhi with transport plan 2021.	**07**
		OR	
Q.4	**(a)**	Explain transportation service problems.	**07**
Q.4	**(b)**	Find Fleet size required and throughput for bus transit having following data. • Length of bus route = 15km • Capacity of bus = 50 passengers • Average speed of bus = 25kmph • Headway = 5 minutes If only 10 buses are available, what will be head way? How many passengers can be moved?	**07**

Q.5 **(a)** Explain the performance characteristics of following urban transport modes: Walking, Bicycle, Taxi, Fixed rout transit, Para-transit, Auto Driver, car Sharing and Motor Cycle. **07**

(b) Write Note: Bus Operation cost classification Matrix. **07**

OR

Q.5 **(a)** Explain following terms: **07**

Shuttle bus, Sky train, Taxi, Dial ï a ï ride, Commuter Transit, Van Pools, and Subscription Buses.

(b) A Highway agency has established the following relationship between travel time on a highway section with Length L (10km) and Volume of Vehicles/hr (V), **07**

$$t = L\left[1.0 + 0.15\left(\frac{V}{2000}\right)^4\right]$$

Where t = travel time for vehicle traveling this section

V = volume of traffic (veh/hr) on this section

The Demand function for the highway section is

D = 4000 ï 100t

D = Demand 9Veh/hr) and t = time (minutes)

If the highway users value of time is Rs. 250/Veh/Hr. What should be the congestion toll levied on this section of highway?

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