

**GUJARAT TECHNOLOGICAL UNIVERSITY****M. E. I<sup>ST</sup> Semester–Remedial Examination – July- 2011****Subject code: 711304N****Subject Name: Basics of Transportation Engineering****Date: 13/07/2011****Time: 10:30 am – 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) Discuss about various modes of transportation with their suitability. **07**  
 (b) Explain the speed-volume-density relationship with the help of sketches. **07**

- Q.2** (a) Discuss the significance of Co-ordination in transportation. Also discuss the factors affecting co-ordination. **07**  
 (b) Explain briefly about personal and para-transit urban transportation systems. **07**

**OR**

- (b) Explain the stages involved in Transport Planning Process with flow chart. **07**

- Q.3** (a) Explain the term traffic volume. What are its uses? Explain any one method for its measurement in the field. **07**  
 (b) State the purposes of O-D study. Enlist various methods to conduct O-D survey and discuss Roadside interview method. **07**

**OR**

- Q.3** (a) What is Super-elevation? Explain any two factors affecting it. **03**  
 (b) Design the super-elevation for a Major District Road in Rolling terrain with the radius of 220m. Comment on the results. What is the co-efficient of lateral friction mobilized if super-elevation is restricted to 0.07. **04**  
 (c) What are the guidelines for selecting rotary type of intersection? Also state the advantages and disadvantages of rotary type intersection. **07**

- Q.4** (a) What are the basic requirements to be provided on Railway Station? **07**  
 (b) A mode choice model for a city includes Auto(A), Buses(B) and Rapid rail (R). The utility functions are as under: **07**

Function	Cost(C) in Rs.	Time (T) in min
$U_{(A)} = 4.2 - 0.4C - 0.05T$	6	40
$U_{(B)} = -0.3C - 0.05T$	3.5	50
$U_{(R)} = 2.5 - 0.4C - 0.06T$	7	50

As per estimation 24000 workers will move each morning to work, then how many workers will choose to take a particular mode?

**OR**

- Q.4** (a) Discuss various points to be considered in planning of an airport. **07**  
 (b) Describe the method of design of overlays for flexible pavement as per IRC guidelines. **07**

- Q.5 (a)** Explain briefly the ‘Marshall Stability Test’ procedure for bituminous mix design. **07**
- (b)** What are the important features of flexible pavement design by CBR method as per IRC:37-2001. **07**

**OR**

- Q.5 (a)** Write short note on “Economic evaluation of Transportation projects”. **07**
- (b)** What are the different causes of traffic accidents? Explain various measures to prevent accidents. **07**

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