

GUJARAT TECHNOLOGICAL UNIVERSITY**M.E. Sem-I Examination January 2010****Subject code: 711304****Subject Name: Basics of Transportation Engineering****Date: 29 / 01 / 2010****Time: 12.00 – 2.30 pm****Total Marks: 60****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. **06**
 (b) Explain briefly about various stages involved in 'Travel Demand Modeling' process. **06**

- Q.2** (a) What are the functions of pavements? Differentiate clearly between flexible and rigid pavements. **06**
 (b) Explain briefly about various public, private and para-transit urban mass transportation systems. **06**

OR

- (b) What are the basic elements of traffic? Explain the characteristics of any one of them which affect the traffic operation. **06**
- Q.3** (a) Explain with flow chart various stages involved in transportation planning process. **06**
 (b) Develop the future trip distribution matrix using average growth factor method for the following data of four zones. Do iteration process up to 2 stages. **06**

D \ O	1	2	3	4	Present Production	Future Production
1	40	40	40	30	150	300
2	20	20	30	20	90	170
3	40	30	50	60	180	270
4	20	10	30	20	80	240
Present Attraction	120	100	150	130	500	
Future Attraction	180	300	300	200		980

OR

- Q.3** (a) Explain term 'Classified traffic volume'. What are the objects of carrying out traffic volume studies? Discuss any one method of collecting classified traffic volume from the field. **06**
 (b) What are the highway geometric elements? Draw a neat sketch of two lane highway in embankment and show all the components. **06**
- Q.4** (a) Describe with sketch 'Traffic Rotary Intersection'. State the factors affecting its design. **06**
 (b) Explain briefly desirable properties of soil and aggregates used in highway construction. **06**

OR

- Q.4 (a)** What are the basic requirements to be provided on Railway Station? **06**
(b) Discuss various points to be considered in planning of an airport. **06**
- Q.5 (a)** What are the desirable properties of bituminous materials in highway construction? Compare tar with bitumen. **06**
(b) Explain briefly the 'Marshall Stability Test' procedure for bituminous mix design. **06**
- OR**
- Q.5 (a)** Define ESWL and EWLF. How will you determine ESWL of dual rear wheels for road pavement design? **06**
(b) Discuss IRC guidelines/recommendations for flexible pavement design by CBR method. **06**
