

# C.U. SHAH UNIVERSITY

## Summer Examination-2018

**Subject Name: Urban Transportation System**

**Subject Code: 4TE07UTS1**

**Branch: B.Tech (Civil)**

**Semester :7**

**Date: 02/04/2018**

**Time: 10:30 To 1:30**

**Marks: 70**

**Instructions:**

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

- Q-1                      Attempt the following questions                      (14)**
- a) What is the relation between mobility and accessibility?                      (1)
  - b) Define objectives UTS.                      (1)
  - c) What is external cordon?                      (1)
  - d) What is the full form of CBD?                      (1)
  - e) Enlist various growth factor models for trip distribution.                      (1)
  - f) Define modal split model.                      (1)
  - g) What is logistic curve?                      (1)
  - h) What are the purpose of traffic assignment model?                      (1)
  - i) Define Non-home-based trip.                      (1)
  - j) Define Corridor Traffic Forecasting.                      (1)
  - k) What is Segment capacity?                      (1)
  - l) Enlist various assignment techniques.                      (1)
  - m) What do you understand by term Mass Transit System?                      (1)
  - n) Define travel forecasting.                      (1)

**Attempt any four questions from Q-2 to Q-8**

- Q-2                      Attempt all questions                      (14)**
- A) Explain problems in the urban transportation in the present scenario of high vehicle ownership.                      (7)
  - B) Enlist the various type of survey and explain any one in detail.                      (7)

- Q-3                      Attempt all questions                      (14)**
- A) Develop trip generation equation using regression analysis for the following data and compute the co-efficient of co-relation.                      (7)
- |                            |    |    |    |    |    |    |    |
|----------------------------|----|----|----|----|----|----|----|
| Income of H.H.<br>(in 100) | 5  | 20 | 8  | 11 | 30 | 40 | 10 |
| Trip per day               | 12 | 10 | 14 | 10 | 15 | 14 | 14 |
- B) Explain aggregate and disaggregate approaches to travel demand.                      (7)

- Q-4                      Attempt all questions                      (14)**
- A) Obtain the future O-D matrix from the given data using Average Growth Factor                      (7)



Method.

| O D               | 1   | 2    | 3    | Future trips |
|-------------------|-----|------|------|--------------|
| 1                 | 60  | 100  | 200  | 360          |
| 2                 | 100 | 20   | 300  | 1260         |
| 3                 | 200 | 300  | 20   | 3120         |
| Future attraction | 360 | 1260 | 3120 |              |

B) Explain with flow chart: Urban Transportation System Planning Process. (7)

Q-5 **Attempt all questions** (14)

A) A town consists of four residential areas 1,2,3,4 and two industrial estates 1 and 2. Trip generation equation shows that, for the design year in question, the trips from home to work generated by each residential area per day are as follows: (7)

2. Trip generation equation shows that, for the design year in question, the trips from home to work generated by each residential area per day are as follows:

| Zone | Trip generation production |
|------|----------------------------|
| 1    | 1200                       |
| 2    | 2400                       |
| 3    | 1700                       |
| 4    | 3100                       |

There are 4000 jobs in industrial estate 1 and 4400 in industrial estate 2. It is known that attraction between zones is inversely proportional to the square of the journey times between zones. The journey times in minute from home to work are:

| Zone | 1  | 2  |
|------|----|----|
| 1    | 25 | 20 |
| 2    | 25 | 14 |
| 3    | 12 | 14 |
| 4    | 18 | 22 |

Calculate and tabulate the interzonal trips for journey from home to work.

B) Explain all or nothing and diversion curve methods for route assignment. (7)

Q-6 **Attempt all questions** (14)

A) What are the factors responsible for travel demand? Explain in detail. (7)

B) What is zoning? Discuss the points to be kept in mind while doing zoning. (7)

Q-7 Write short notes on any two: - (14)

- 1) Screen line check.
- 2) Factors affecting route choice.
- 3) Metro railway system.
- 4) Urbanization.

Q-8 **Attempt all questions** (14)

A) Find maximum capacity per hour of BRT and METRO for the frequency of 60 trips per hour on any corridor. (7)

B) Write detail procedure for road side interview survey. (7)

