**CBCS SCHEME**

USN ☐☐☐☐☐☐☐☐☐☐ **15CV751**

### Seventh Semester B.E. Degree Examination, July/August 2022
## Urban Transportation and Planning

Time: 3 hrs. Max. Marks: 80

**Note:** *Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

1 a. Explain System approach to Urban Transport Planning, with the flow diagram. **(10 Marks)**
  b. Describe the impacts of Urban transportation in present scenario. **(06 Marks)**

**OR**

2 a. Explain the stages in Urban Transport Planning. **(10 Marks)**
  b. Explain the Interdependency of landuse and Transport system. **(06 Marks)**

### Module-2

3 a. Define Study area and explain the process of Zoning. **(06 Marks)**
  b. Explain the types of Surveys conducted for Transport Planning Process. **(10 Marks)**

**OR**

4 a. Explain the basic movements of survey area to be considered in Transport planning. **(06 Marks)**
  b. Write short notes on : i) Sampling ii) Expansion factor iii) Sources of data iv) Accuracy checks. **(10 Marks)**

### Module-3

5 a. Explain the factors governing trip generation. **(08 Marks)**
  b. Determine the home – based shopping attractions attracted to 4 zones in a small urban area to various rates of employment in those zones. The relation between various employments are given by following equation : $Y = 1.655X_2 + 4.082X_3 + 0.456X_4 - 3.004$.
  Where $Y$ = Home based shopping attractions , $X_2$ = Wholesale and retail employment , $X_3$ = Highway retail employment , $X_4$ = Service employment.
  The above details for various zones are as tabulated below :

| Sℓ No | $X_2$ | $X_3$ | $X_4$ |
|-------|-------|-------|-------|
| 1 | 100 | 15 | 25 |
| 2 | 20 | 150 | 30 |
| 3 | 35 | 75 | 60 |
| 4 | 10 | 200 | 30 |

**(08 Marks)**

**OR**

6 a. Explain the Factor method of Trip distribution. **(04 Marks)**
  b. A study area has been divided into three zones A, B and C. The results of the trip generation analysis and present trip distribution matrix is included in the following tables. Develop the future trip distribution of trip matrix using :
  i) Uniform growth factor method ii) Average growth factor method.

Table Q6(b)

| | | A | B | C |
|---|---|---|---|---|
| Produced Trips | Present | 150 | 90 | 180 |
| | Future | 300 | 170 | 270 |
| Attracted Trips | Present | 120 | 100 | 150 |
| | Future | 180 | 300 | 300 |

Trip distribution matrix (present)                                   (12 Marks)

| O/D | A | B | C |
|---|---|---|---|
| A | 40 | 40 | 40 |
| B | 20 | 20 | 30 |
| C | 40 | 30 | 50 |

## Module-4

7    a.  Explain the Gravity models of trip distribution.                     (06 Marks)
     b.  A self contained town consists of four residential areas A, B, C and D. Two Industrial estates X & Y. Generation equations show that for the design year, the trips from home to work generated by residential area as follows :  There are 3700 jobs in industrial estate X and 4500 jobs in industrial estate Y. It is known that the attraction between zones is inversely proportional to square of the journey times between zones. The journey times in minutes from home to work are tabulated below. Calculate and tabulate the inter zonal trips for journey from home to work.                     (10 Marks)

Trips in zones

| A | 1000 |
|---|---|
| B | 2250 |
| C | 1750 |
| D | 3200 |

Journey time

| Zones | X | Y |
|---|---|---|
| A | 15 | 20 |
| B | 15 | 10 |
| C | 10 | 10 |
| D | 15 | 20 |

**OR**

8    a.  Explain the factors governing modal split analysis.                  (06 Marks)
     b.  Explain the pre-distribution model of modal split with flow diagram.  (10 Marks)

## Module-5

9    a.  Explain the purpose of Traffic Assignment.                          (06 Marks)
     b.  Explain the different types of Assignment Techniques.                (10 Marks)

**OR**

10   a.  Explain the factors to be considered for selecting land use transport model.   (08 Marks)
     b.  Explain the Garin – Lowry model of Land – use transport models.      (08 Marks)

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