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Name...

Reg. No...................................

EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE [SUPPLEMENTARY] EXAMINATION, OCTOBER 2013

CE/PTCE 09 803 L 16—URBAN TRANSPORTATION PLANNING

Time : Three Hours

Maximum : 70 Marks

Part A

Answer **all** *questions.*
Each question carries 2 marks.

1. (a) What are the major components of travel demand ?

   (b) What is travel impedance ?

   (c) Write a note on utility and disutility functions.

   (d) Define Trip. How trips are classified ?

   (e) List the trip distribution models.

   (5 × 2 = 10 marks)

Part B

Answer any **four** *questions.*

2. (a) What are the transportation problems faced by the society ? Discuss how the transportation planning can assist in solving these problems.

   (b) Explain how a study area is delineated.

   (c) What is modulus of subgrade reaction and modulus of relative stiffness ?

   (d) What are the assumptions in category analysis ?

   (e) Explain diversion curves in traffic analysis.

   (f) What are the elements of transportation network ? Explain any *one* method of coding the network.

   (4 × 5 = 20 marks)

Part C

Answer **all** *questions.*

3. (a) With the help of flow chart, explain the traffic functional transportation planning process.

   Or

   (b) What are the components of an urban transportation system ? Explain.

Turn over

4. (a) Discuss the transport behaviour of individuals and households. Explain how road side interviews are carried out.

Or

(b) Compare the different methods of forecasting trip generation rates. Explain various statistical and logical tests needed while developing regression models.

5. (a) Forecast the horizon year trip distribution matrix for a 3 zone study area using the Detroit growth factor model. The base year trip matrix and the horizon year trip ends are given below :

	T_{ij}	Destination		
		1	2	3
Origin	1	100	350	250
	2	300	50	400
	3	200	450	150

	Zone		
	1	2	3
T_i	1500	1500	2000
T_j	1000	2250	1750

The procedure may be terminated after 2 iterations.

Or

(b) The number of trips produced in and attracted to the three zones 1, 2 ,3 are tabulated as under :

Zone	...	1	2	3	Total
Trip produced	...	14	33	28	75
Trip attracted	...	33	28	14	75

As a result of calibration, the frictional factors to be associated with the impedance values between the various zones have been found to be as follows :

Impedance unit	...	1	2	3	4	5	6	7	8
Friction Factor	...	82	52	50	40	39	26	17	13

The impedance values between the various zones can be taken from the following matrix :

O/D	1	2	3
1	8	1	4
2	1	7	6
3	2	6	3

Distribute the trips between the various zones.

6. (a) What are the different methods of traffic assignment ? Explain the capacity restrained traffic assignment stating its advantages and disadvantages.

Or

(b) What are the factors affecting mode choice ? What are the different mode split models ? Explain.

(4 × 10 = 40 marks)