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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

M.Tech Degree S1 (R,S) Examination December 2024 (2022 scheme)

Course Code & Name: 221TCE009 URBAN TRANSPORTATION PLANNING

Max. Marks: 60 Duration: 2.5 Hours

PART A

Answer all questions. Each question carries 5 marks Marks

1 What is travel demand matrix? Explain briefly. (5)

2 How will you classify trips? Give examples. (5)

3 Estimate the future year trip distribution (one iteration) from the following base year using average growth factor method. (5)

Zone	A	B	C	Growth factor
A	0	50	100	2
B	50	0	150	3
C	100	150	0	4

4 What is meant by traffic assignment? List out the methods of traffic assignment. (5)

5 How can non-transportation strategies, such as land use planning, telecommuting, or urban design, help solve transportation problems like congestion and accidents? (5)

PART B

Answer any 5 questions. Each question carries 7 marks

6 With a flow chart, explain the problem definition phase of transportation planning, discuss the characteristics of trip maker and their effect on travel demand estimation. (7)

7 Enumerate the factors to be considered for the selection of cordon line and zone boundaries for an urban transportation study. (7)

8 Enumerate the factors affecting trip production. (7)

9 Given the utility equation $U_k = a_k - 0.003X_1 - 0.04X_2$, where X_1 is the travel cost in rupees and X_2 is the travel time in minutes. (7)

(i) Calculate the market shares of the following travel modes by logit model formulation.

Mode, k	a_k	X_1	X_2
Automobile	-0.20	120	30
Express Bus	-0.40	60	45
Regular Bus	-0.60	30	55

(ii) Estimate the effect that a 50% increase in the cost of all three modes will have on mode split.

10 What are the benefits of transportation planning software? Describe any two of the transportation planning software used in industry. (7)

11 Estimate the future distribution by Furness method (up to 2 iterations) from the following trip tables (trips in 10s). (7)

O/D	1	2	3	4	Future Trips
1	-	5	6	3	28
2	4	-	7	2	39
3	2	6	-	4	30
4	5	7	3	-	22
Future trips	20	50	34	15	

12 Explain the steps involved in four stage process of transportation planning. (7)

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