U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

May / June 2025 Semester End Main Examinations

Programme: B.E. **Semester: VIII**

Branch: Civil Engineering **Duration: 3 hrs.**

Course Code: 22CV8PEUTP / 21CV8PEUTP **Max Marks: 100**

Course: Urban Transport Planning

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

			UNIT - I	*CO*	*PO*	Marks
1	a)		Illustrate the process of system approach to urban transportation planning with a flow diagram.	*CO1*	*PO1*	**10**
	b)		Discuss the functions and characteristics of urban transport planning.	*CO1*	*PO1*	**10**
			OR			
2	a)		Discuss on interdependence of landuse and transport	*CO1*	*PO1*	**10**
	b)		Summarize the various stages involved in transportation planning process.	*CO1*	*PO1*	**10**
			UNIT - II			
3	a)		Discuss any two types of surveys carried out in urban transport planning.	*CO1*	*PO1*	**10**
	b)		Define 'Study Area'. Elaborate the factors considered in dividing the whole area into zones.	*CO1*	*PO1*	**10**
			OR			
4	a)		Define external cordon line. Discus the factors to be given due weightage in the selection of external cordon line.	*CO1*	*PO1*	**10**
	b)		List the methods of Origin and Destination study. Discus the Home Interview method in detail.	*CO1*	*PO1*	**10**
			UNIT - III			
5	a)		Explain category analysis and discuss the assumptions made in category analysis.	*CO2*	*PO1*	**08**

	b)	The table shows data for trips per day, as related to persons in a household and vehicle ownership, for one zone of the study area. Develop the trip generation equation. $y=a+b_1x_1+b_2x_2$	*CO2*	*PO2*	**12**

Trips per day	4	8	2	3	4	6
Persons in Household	4	8	3	6	5	4
Vehicle Ownership	2	5	1	3	2	2

		OR				
6	a)	Discuss the factor influencing trip generation.	*CO2*	*PO1*	**10**
	b)	Following information are obtained from transportation survey.	*CO2*	*PO2*	**10**

Traffic Zone	1	2	3	4	5	6
Total trips generated (in hundred)	12	11	17	15	12	15
Population (in thousand)	26	28	31	33	22	30

Develop a linear regression model of the population in the zone.

		UNIT - IV				
7	a)	What is synthetic model? Explain the gravity model along with its calibration.	*CO2*	*PO1*	**10**
	b)	Three zones A, B and C are given with interchanges between A and B=25, between B and C=35 and between C and A=50. These are non-directional interchanges. Growth factors of 2.0, 2.5 and 1.6 are forecasts for the zones A, B and C respectively. Using fratar method, compute the zonal interchanges in the forecast year.	*CO2*	*PO2*	**10**
		OR				
8	a)	Explain the different types of opportunity model.	*CO2*	*PO1*	**06**
	b)	The number of recreational trips produced in and attracted to three zones 1, 2, & 3 by public transport are as under	*CO2*	*PO2*	**14**

Zone	**1**	**2**	**3**	**Total**
Trips Produced	16	28	32	76
Trips Attracted	28	18	30	76

The friction-factor values between the various zones, obtained as a result of calibration, can be taken from the following matrix.

P\A	**1**	**2**	**3**
1	15	80	40
2	40	25	30
3	45	26	39

Distribute the trips between the zones taking the zone to zone adjustment factor $K_{ij}=1$

			UNIT - V			
	9	a)	Define modal split? Discuss the factors affecting modal split.	*CO3*	*PO1*	**10**
		b)	What are the methods of determining shortest path of a network? Explain all or nothing assignment with suitable example.	*CO3*	*PO1*	**10**
			OR			
	10	a)	With neat flow diagram explain Post-distribution modal split.	*CO3*	*PO1*	**10**
		b)	Discuss the applications of route assignment and the factors affecting route choice.	*CO3*	*PO1*	**10**

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