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Bengaluru

Mid Term Examinations - October 2026

Date: 05/10/2026 **Time:** 02:00 PM - 03:30 PM

Course Code: CIV3425 **Course Name:** Urban Transport Planning

Semester: Fifth Semester **Max. Marks:** 50 **Weightage:** 50%

CO - Levels	CO1	CO2	CO3
Marks	2	12	76

PART A: Answer Following Questions. 10 M

Q.N.	Questions	M	CO	BT
1	Differentiate between nominal scale and ordinal scale.	2	CO3	BT1
2	List the four steps in transport modeling.	2	CO1	BT1
3	Name the two methods used for the creation of TAZs (Traffic Analysis Zones).	2	CO2	BT1
4	List any two methods used in trip distribution.	2	CO3	BT1
5	State any two methods used for trip generation.	2	CO3	BT1

PART B : Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
6	Explain the various data collection techniques used in transportation planning.	10	CO2	BT2
7	a. Describe network geometry used in transport planning. Draw neat sketches to explain each element. b. Differentiate between primary data and secondary data.	10	CO3	BT2

PART C: Answer Any 1 Following Questions. 15 M

Q.N.	Questions	M	CO	BT
8	A household travel survey gives the following data with 6 households in a zone. **Household** / **Vehicles (X)** / **Trips/day (Y)** 1 / 0 / 3 2 / 1 / 4 3 / 1 / 5 4 / 2 / 8 5 / 2 / 7 6 / 3 / 10 a) Find the least-squares regression equation. b) Plot the regression line and mark residuals for each household. c) Interpret the slope and intercept in transport-planning terms. d) Estimate daily trips for a household owning 4 vehicles. What is the assumption in this prediction? e) If household 4 purchases two new vehicles and household 6 sells 1 vehicle, estimate the percentage increase or decrease in the number of total trips from this zone containing the 6 houses.	15	CO3	BT3
9	The BMTC buses have seen a sharp increase in their ridership in the last few months of 2026. The ridership (in thousands) for each month at NES junction is shown in the table below. Month: January, February, March, April, May, June Numbers: 120, 145, 130, 160, 210, 320 a) Find the least squares regression line for the above. b) Use the least squares regression line as a model to estimate the ridership of the company in December 2026. What is the assumption in this prediction? c) After an intercept survey, you observe that the public require higher frequency of buses at NES junction. How many more buses will you introduce, if the targeted ridership is 1500 (thousand)(upto June) and 1 bus carries 80 passengers, carries out 10 trips.	15	CO3	BT3

PARTD: Answer Any 1 Following Questions. 15 M

PTO (Please Turn Over)

Q.N.	Questions	M	CO	BT
10	**Cat.** | **Household type** | **Rate** 1 | Low income, 0 vehicle | 1.8 2 | Low income, 1+ vehicle | 2.5 3 | Middle income, 0 vehicle | 2.3 4 | Middle income, 1+ vehicle | 3.2 5 | High income, 0 vehicle | 2.5 6 | High income, 1 vehicle | 3.8 7 | High income, 2+ vehicles | 4.8 **Zone** | **C1** | **C2** | **C3** | **C4** | **C5** | **C6** | **C7** A | 300 | 200 | 350 | 400 | 50 | 150 | 100 B | 510 | 150 | 300 | 255 | 40 | 100 | 60 C | 200 | 300 | 250 | 500 | 100 | 250 | 200 D | 150 | 100 | 200 | 350 | 120 | 300 | 250 Using category analysis, estimate the following: (a) Trip production from each zone (b) Citywide production of trips (c) Each zone's share in total trips (d) Arrange the zones by production (e) Calculate the percentage change in trip production in Zone A if the following happen: C1 −15%, C2 +20%, C3 +10%, C4 +30%, C5 +20%, C6 +40%, C7 +50%.	15	CO3	BT3
11	For the given OD matrix, use the uniform factor method and distribute the trips among the zones. Predict future trips generated from each of NES, Majestic and Sarjapur using the linear regression equation : Y = 51.2 X + 30 **Origin (O) Hebbal Bidadi Kempapura** **NES** 65 10 20 **Majestic** 100 20 300 **Sarjapur** 200 30 20	15	CO3	BT3