SARVAJANIK UNIVERSITY

Keep it blank	S-2025 Date: 04-06-25 Time: 09:30 AM to 12:30 PM Regular / Backlog Exam	5

Master of Architecture (Urban Design)- SEMESTER– II EXAMINATION

Course Code: MRUD12202   **Total Marks: 120**

Course Name: Transport Planning and Urban Mobility

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Support your answer with neat and illustrated diagram wherever necessary

Q.No		Marks
Q1.		20
(A)	**State whether following statements are true or false:**	05
1	The most basic assumption of Transportation planning is that the travel patterns are tangible, stable and predictable.	
2	Family size, composition and Income influence trip generation.	
3	In the context of urban transport, "modes" are fixed elements.	
4	The land use adjacent to road significantly influences generation of pedestrian traffic.	
5	The purpose of Fright Transportation is to provide publicly accessible mobility over specific parts of a city.	
(B)	**Define/Explain the Terms (ANY FIVE)**	15
1	Network	
2	Multiple nuclei concept	
3	Home-Based and Non Home Based trip	
4	MRT	
5	Collective Transportation	
6	Classification of urban roads	
Q.2	**Answer in detail: (ANY TWO)**	20
1	Explain the concept of TOD and its significance in urban development. Support your answer with examples	
2	Discuss the parameters to be considered while selecting land-use transport model for urban planning and development.	
3	Explain significant features of Hansen's and Lowry Model	
Q.3	**Answer in detail: (ANY TWO)**	20
1	Explain: Trip Generation and Trip Distribution with reference to Transportation Planning Process.	
2	Explain Sustainable urban Transport. Support your answer with appropriate case study/Example.	
3	Explain: System perspective and its advantages in Transportation planning.	
Q.4	**Write a Note: (ANY TWO)**	30
1	Importance of traffic studies	
2	Give classification of urban roads. Explain with example of any urban area.	
3	Explain: NMV	
4	Enlist the factors governing Road design	

Q.5.	Write a Descriptive Answer	30
1	You are assigned the task of Designing a Road Section with All the Required Amenities for a growing urban area. Use the following traffic and design data to determine the appropriate road width, number of lanes, and amenities required (such as footpaths, cycle tracks, drainage, median, and parking facilities). Perform PCU (Passenger Car Unit) calculations and provide necessary design justifications.	20

Given Data:
Traffic Volume Count (per day)
Vehicle Type   Number of Vehicles
Cars -   15,000
Two-Wheelers - 32,000
Auto Rickshaws - 7,800
Buses - 2,200
Light Commercial Vehicles (LCVs) - 6,500
Trucks (Heavy Vehicles) - 2,800
Bicycles - 10,000
Pedestrians (avg. per km) - 10,000

PCU Factors (IRC Recommendations):
Vehicle Type   PCU Factor
Cars - 1.0
Two-Wheelers - 0.5
Auto Rickshaws - 1.2
Buses - 3.0
LCVs - 1.5
Trucks - 3.0
Bicycles - 0.5

Other Assumptions:
Design speed: 50 km/h
Road type: Urban Major Arterial Road
Design period: 20 years
Peak Hour Factor: 10% of daily volume
Footpath required for pedestrian traffic exceeding 2,000/km
Cycle track required for bicycle traffic exceeding 1,000/day
Median required for roads with more than 2 lanes in each direction
Drainage and parking required based on standard urban road guidelines

Tasks:
Calculate the Total PCU/day and PCU/hour using the data provided.
Determine the number of lanes required for the projected traffic.
Suggest a suitable cross-sectional layout of the road including:
Carriageway width
Footpath
Cycle track
Median
Drainage
Parking bay (if required)
Justify the need for each amenity based on the calculated statistics and IRC standards.
Draw a neat labeled sketch of the proposed road section.

| 2 | Issues in Public Transportation planning in India. | 10 |