



SARVAJANIK UNIVERSITY

S-2026 Date: 05-08-26 Time: 09:30 AM to 11:30 AM
Interim Backlog Exam

Master of Planning (Urban & Regional Planning) & Master of Architecture (Urban Design)
SEMESTER- II EXAMINATION

Course Code: MFGN12202

Total Marks: 50

Course Name: Transportation Planning & Urban Mobility

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q1.	Answer in Short (Compulsory) (1 Mark for Each Question)	10 Marks
	Explain Terminology 1. Mobility 2. Accessibility Full Form 3. TOD 4. NMT 5. CMP Explain in Short 6. Sector theory 7. Freight Transportation 8. 15 Minute City True or False 9. Travel patterns are static. 10. Same land uses produce different trip rates	
Q.2	Write a Note (Attend 4 Out of 5) (5 Marks for Each Question)	20 Marks
	1. Explain Role of Transportation in Urban Development 2. Describe Challenges in Urban Transportation System 3. Discuss the need of Land Use Transport Modelling. 4. Write Short note on: Modal Split 5. Write Short note on: PCU	
Q.3.	Write Descriptive Answer (Attend 2 Out of 3) (10 Marks for Each Question)	20 Marks
	1. Brief about Classification of Urban roads, their hierarchy and functions. Support your answer with an example of any area/city known to you, with schematic diagrams. 2. Explain Concept of Transit Oriented Development (TOD) with sketch. 3. Design of Road Section with Amenities 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.

Given Data:

Traffic Volume Count (per day)
 Vehicle Type Number of Vehicles
 Cars - 12,000
 Two-Wheelers - 18,000
 Auto Rickshaws - 3,000
 Buses - 1,200
 Light Commercial Vehicles (LCVs) - 2,500
 Trucks (Heavy Vehicles) - 1,800
 Bicycles - 2,000
 Pedestrians (avg. per km) - 5,000

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.