

ANURAG Engineering College
(An Autonomous Institution)

III B.Tech I Semester Regular/Supplementary Examinations, Dec-2023/Jan-2024

TRANSPORTATION ENGINEERING
(CIVIL ENGINEERING)

Time: 3 Hours

Max.Marks:75

Section – A (Short Answer type questions)

(25 Marks)

Answer All Questions

	Course Outcome	B.T Level	Marks
1. What are the common road network patterns, and how do they contribute to efficient transportation systems?	CO1	L1	2M
2. Compare national highways and state highways based on their characteristics and functions.	CO1	L2	3M
3. Under what circumstances is extra widening necessary, and how is it determined?	CO2	L1	2M
4. Determine the required super elevation on a curve with a radius of 150 meters and a design speed of 60 km/h.	CO2	L1	3M
5. A traffic study recorded the following vehicle counts in a 15-minute interval: 200, 180, 220, and 190. Determine the average flow rate in vehicles per hour.	CO3	L1	2M
6. Define the concept of Passenger Car Unit (PCU). How is PCU used in traffic engineering to account for variations in vehicle types?	CO3	L1	3M
7. Why are road markings essential in traffic management?	CO4	L1	2M
8. What is the purpose of traffic signs? Provide an overview of the types of traffic signs.	CO4	L1	3M
9. Define channelization and its objectives in intersection design.	CO5	L1	2M
10. Define highway capacity and level of service.	CO5	L1	3M

Section B (Essay Questions)

Answer all questions, each question carries equal marks.

(5 X 10M = 50M)

11. A) Discuss the historical evolution and milestones in highway development in India. How has the focus on infrastructure planning changed over the years?	CO1	L3	10M
OR			
B) Explain the importance of comprehensive engineering surveys in the planning and design phase of highway projects. How do these surveys contribute to minimizing environmental impact and optimizing cost?	CO1	L3	10M
12. A) Determine the overtaking sight distance required on a two-lane highway with a design speed of 100 km/h, considering a passing sight distance of 300 meters and a reaction time of 2.5 seconds	CO2	L3	10M
OR			
B) Discuss the key design controls and criteria that guide highway geometric design. How do these controls influence the overall layout of a highway?	CO2	L3	10M

13. A) Explain the significance of the Peak Hour Factor in traffic engineering. How is it determined, and what does it indicate about traffic patterns? CO3 L3 10M
- OR**
- B) Discuss the importance of traffic studies in understanding and improving traffic flow. Provide examples of the types of information collected in traffic studies CO3 L3 10M
14. A) Explain the significance of traffic signals in controlling intersections and managing conflicting traffic movements CO4 L3 10M
- OR**
- B) Discuss the different types of traffic control devices, highlighting their specific functions and applications. CO4 L3 10M
15. A) Categorize various types of at-grade intersections. Provide examples of each type and explain their characteristics CO5 L3 10M
- OR**
- B) Discuss the considerations and challenges in implementing grade-separated intersections in urban areas. How does urban context influence the design process? CO5 L3 10M