Reg No.:_____ Name:_____ PTE020526BA-1

**Jyothi Engineering College(Autonomous)**

M.Tech Degree S2 (R) Examination, May 2026 (2025 Scheme)

**25PTET202 - TRAFFIC ENGINEERING**

**Total Mark: 60** **Total Time: 2hr 30min**

CO MARK

## PART A

**Answer All Questions**

1. Discuss vehicular characteristics and analyze their influence on the efficiency of a traffic stream. CO1 (5)
2. Demonstrate how spot speed study results can be presented using appropriate graphical and statistical methods. CO2 (5)
3. Define uninterrupted flow with examples. Mention its characteristics. CO3 (5)
4. Apply traffic stream models to explain their features and suitability in analyzing traffic flow. CO4 (5)
5. Illustrate sampling in traffic studies with brief explanation. CO5 (5)

## PART B

**Answer Any Five Question(s)**

6. Examine road user characteristics and analyze their impact on traffic flow, safety, and road design. CO1 (7)
7. What is the significance of travel time and delay study in the analysis of traffic stream? How travel time is determined through the moving observer method? CO2 (7)
8. A fixed time 2 phase signal is to be provided at an intersection having a North - South and an East-West Road where only straight- ahead traffic is permitted. The design hour flows from the various arms and the saturation flows for these arms are given below. CO3 (7)

| | North | South | East | West |
|---|---|---|---|---|
| Design hour flow (q) in PCU/hour | 800 | 300 | 700 | 1000 |
| Saturation flow (s) in PCU/hour | 2200 | 2000 | 3000 | 3000 |

Calculate the optimum cycle time and green times for the minimum overall delay. Assume the value of amber period is 2 seconds and the time lost per phase due to starting delays as 2 seconds. Also, Sketch the timing diagram for each phase.

9. Describe in detail the HCM method for the determination of Capacity and Level of Service of multilane highways. CO3 (7)

10. Assume a linear relationship between speed and density on a length of highway having the free flow speed of 80 kilometre per hour and the jam density of 72 vehicles per kilometre. CO4 (7)

i) Determine the speed at maximum flow and the maximum flow expected on this section of the road.

ii) Suppose the observed flow is 75% of the capacity, what are the possible flow speeds?

11. Analyse the principles of car-following models and examine how Boltzmann-like behaviour explains the statistical nature of traffic flow. CO4 (7)

12. What is the need for traffic simulation? Illustrate the various steps in traffic simulation modelling. CO5 (7)

**********