

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2022**

**Subject Code:2170613****Date:03-01-2023****Subject Name:Traffic Engineering****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Define the terms: (a) Time mean speed; (b) Space mean speed; (c) PCU. **03**  
(b) What are the functions of traffic engineering? **04**  
(c) Enlist method of traffic volume study and explain mechanical counters method with advantages. **07**

- Q.2** (a) Explain (any two) physical factors of road users. **03**  
(b) Explain collision and condition diagram with neat sketch. **04**  
(c) The average normal flow of traffic on cross roads A and B during design period 500 and 250 PCU per hour. The saturation traffic flow values on these roads are estimated as 1200 and 900 PCU per hour respectively. The all red time required for pedestrian crossing is 12 seconds. Design a two phase traffic signal by Webster method. **07**

**OR**

- (c) Enlist different types of interchanges and explain cloverleaf interchange. **07**

- Q.3** (a) Explain the presentation of spot speed data with help of Cumulative Frequency curve. **03**  
(b) Explain various types of road marking as per IRC. **04**  
(c) Discuss the purpose and methods of conducting Origin and Destination study. Explain any one method of conducting Origin and Destination study. **07**

**OR**

- Q.3** (a) Explain Enoscope method to measure spot speed of vehicle. **03**  
(b) Explain the traffic maneuvers and its applications. **04**  
(c) Explain various warning signs as per IRC with sketch. **07**

- Q.4** (a) Define: (a) AADT; (b) ADT; (c) Desire Lines. **03**  
(b) Explain various terminal facilities require along the highways. **04**  
(c) What is Traffic island? Describe it functions, advantages and disadvantages. **07**

**OR**

- Q.4** (a) Draw a fundamental diagram of traffic flow. **03**  
(b) Write short note on 'Diamond Interchange' with sketch. **04**  
(c) Explain various types of traffic signals with advantages and disadvantages. **07**

- Q.5** (a) Explain vehicular characteristics considered in traffic engineering. **03**  
(b) Write short note on: Off-street parking. **04**  
(c) Draw neat sketch of Rotary Intersection with its advantages and disadvantages. **07**

**OR**

- Q.5** (a) Define: (a) Luminous Intensity; (b) Pedestrian Refuse Island; (c) Lumen. **03**  
(b) Write a short notes on “3-E’s” for road safety. **04**  
(c) Describe the factors to be considered in the design of street lighting. **07**

\*\*\*\*\*