

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VI EXAMINATION – WINTER 2025****Subject Code: 3160615****Date: 25-11-2025****Subject Name: Traffic Engineering and Management****Time: 02:30 PM TO 05:00 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.

| | MARKS |
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| Q.1 (a) Discuss the scope of traffic engineering. 03 | |
| (b) Write short note on on-street parking and their design standards. 04 | |
| (c) Define the following: 07 | |
| (1) Time mean speed (2) Traffic Density (3) Time headway | |
| (4) Design speed (5) Parking index (6) Parking turn-over | |
| (7) Highway Capacity | |
| Q.2 (a) Explain (i) Isochrones (ii) Passenger Car Unit 03 | |
| (b) Enlist the methods of spot speed study and explain enoscope method. 04 | |
| (c) Explain permanent physical factors of road user. 07 | |
| OR | |
| (c) Explain vehicle resistances and power requirements to be encountered by a vehicle in operation. 07 | |
| Q.3 (a) Enlist methods for travel time and delay study and explain any one. 03 | |
| (b) The average length of vehicle in traffic is 7 m and average distance is 3 m between the cars. Average time headway at maximum flow is 3.0 seconds. Calculate (i) Jam density (ii) Maximum flow (iii) Optimum density at maximum flow (iv) Optimum speed at maximum flow. 04 | |
| (c) Explain Green shield model showing the relationship between traffic flow parameters. 07 | |
| OR | |
| Q.3 (a) Explain: histogram, frequency distribution curve and cumulative frequency curve with the help of sketch. 03 | |
| (b) The vehicles pass 1 km length of road in 1 min, 2 min, and 3 min time respectively. Find the time mean speed and space mean speed. 04 | |
| (c) Enlist the various methods of traffic volume study. 07 | |
| Q.4 (a) Write advantages and disadvantages of a rotary intersection. 03 | |
| (b) Draw the phase diagram for two phase and three phase system of traffic signal. 04 | |
| (c) Explain various methods of origin and destination study. 07 | |
| OR | |
| Q.4 (a) Draw the sketch of the following: 03 | |
| (i) Trumpet interchange (ii) Diamond interchange | |
| (b) Differentiate between condition diagram and collision diagram. 04 | |
| (c) Explain various types of parking surveys. 07 | |

Q.5 (a) Draw the conflict points for (i) cross roads (both two ways) and (ii) cross roads (one two way and other one way) **03**
(b) Write short note on signal coordination. **04**
(c) Discuss various elements of rotary design. **07**

OR

Q.5 (a) Write short note on: Level of Service (LOS). **03**
(b) Write a short note on: Intelligent Transport System (ITS). **04**
(c) Discuss the preventive measures to decrease the accident rates on roads. **07**
