

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
M.Tech. Summer 2018 - 19 Examination

Semester: 2**Subject Code: 203211152****Subject Name: Advanced traffic engineering****Date: 06/05/2019****Time: 10:30am To 01:00pm****Total Marks: 60****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1** A) Explain time space diagram. (05)
B) Draw the sketches of half cloverleaf and full cloverleaf grade separated intersections. (05)
C) Explain the Lighthill and William's theory and derive the equation $Q = K.U$ by it. (05)

Q.2 Answer the following questions. (Attempt any three) (Each five mark) (15)

A) Draw a diagram to depict speed-flow relationship and explain speed variation at various flow levels.

B) Define following.

- (1) Parking Accumulation
- (2) parking Turnover
- (3) Parking Index
- (4) Parking Load.
- (5) Efficiency

C) Draw sketches for on street parking methods.

D) Explain the objectives of Channelization.

- Q.3** A) Design cycle tracks for urban roads as per IRC guidelines. (07)
B) Explain Shock waves in details (08)

OR

B) Explain the HCM method of Estimation of the free flow with and without the effects of grades, and its equations. (08)

- Q.4** A) Vehicles arrive at a toll booth at an average rate of 300 per hour. Average waiting time at the toll booth is 10 s per vehicle. If both arrivals and departures are exponentially distributed, what is the average number of vehicles in the system, average queue length, the average delay per vehicle, the average time a vehicle is in the system? (07)

OR

A) What is queue discipline? Explain any four types of queue discipline. (07)

B) What do you mean by traffic simulation? What are the Use of VISSIM and VISUM simulation in solving traffic related problems? (08)