

**PARUL UNIVERSITY**  
**FACULTY OF ENGINEERING & TECHNOLOGY**  
**M.Tech. Winter 2017 - 18 Examination**

**Semester: 2**  
**Subject Code: 03211151**  
**Subject Name: Advance Traffic Engineering**

**Date: 08/01/2018**  
**Time: 02:00 pm to 4:30 pm**  
**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) Draw graphs showing relationships between volume, speed and density. (05)  
 B) Explain LOS and Capacity with reference to urban roads. (05)  
 C) Discuss methods of traffic calming. (05)
- Q.2 Answer the following questions.** (Attempt any three) (Each five mark) (15)  
 A) Explain time space diagram.  
 B) Discuss congestion management.  
 C) Draw sketches for on street parking methods.  
 D) Write procedure of Monte Carlo method.
- Q.3** A) Design cycle tracks for urban roads as per IRC guidelines. (07)  
 B) Find out the reserved capacity of the intersection. The traffic flow per hour is shown in the table below. The carriageway width is 12 m. Assume suitable data. (08)

Approach	Left Turning			Straight Turning			Right Turning		
	2-W	LCV	HCV	2-W	LCV	HCV	2-W	LCV	HCV
N	240	100	90	130	60	110	160	120	70
S	310	140	110	160	80	70	220	90	90
E	180	120	100	150	90	60	210	60	80
W	250	130	80	190	70	90	230	80	110

**OR**

- B) As per IRC guidelines write the pedestrian facilities for urban roads. (08)
- Q.4** A) Explain Lighthill and Withams Theory. (07)

**OR**

- A) Draw net sketches of different grade separated intersections. (07)  
 B) Determine the signal timing for 2-phase signal design. Traffic Volume data is given in the table below. If intergreen period is 8 sec, amber time is 3 sec, and lost time is 2 sec for each phase. Assume suitable data. (08)

	N	S	W	E
Normal traffic pcu/hr	660	560	440	410
Saturation traffic pcu/hr	1650	1500	1300	1300