

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014****Subject code: 1721301****Date: 16-06-2014****Subject Name: Traffic Engineering - II****Time: 02:30 pm - 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.

- Q.1** (a) What is importance of capacity in highway transportation? Give formula for capacity theoretically derived, also give formula for average spacing(S) for moving vehicles. **07**
- (b) Explain the linear relationship between speed and concentration by drawing speed flow concentration curves. **07**

- Q.2** (a) Explain Norman method of signalized intersection capacity. **07**
- (b) Draw sketch and describe Mini roundabout as per UK practice. **07**

OR

- (b) Describe the characteristics of levels of services as per HCM manual. **07**
- Q.3** (a) Explain by drawing sketch merging ,diverging, crossing and weaving flow in traffic **07**
- (b) Explain simulation techniques. What are its advantages? **07**

OR

- Q.3** Traffic flow in an urban sections at the intersection of two highways in design year is given below A=Cars,B=commercial vehicles and C= two wheelers **07**

Approach	Left turning			Straight going			Right turning		
	A	B	C	A	B	C	A	B	C
North	200	50	100	250	100	150	150	50	80
East	180	60	80	220	50	120	200	40	120
South	250	80	100	150	50	90	160	70	90
west	220	50	120	180	60	100	250	60	100

The highway at present intersects at right angle. And have carriage way width of 15.0m. design rotary intersection PCUs for A=1.2,B=2.8 & C=.75

- Q.4** (a) Describe in detail standards for parking space. Also explain parking demand & supply **07**
- (b) Explain field procedure for calculating delay at signalized intersection. **07**

OR

Q-4

A three phase traffic signal is to be installed at a right angle crossing of two city Streets. The site is average and approaches are 12m wide between the kerbs. The

Approaches are straight and level parking is prohibited on them. One of the phase is to be 'pedestrians only' phase occurring at the end of each cycle starting delay may be taken as 2seconds. An all red period of 4seconds to be provided after each cycle phase to allow clearance of right turning vehicles left over the crossing. The design hourly traffic volume in pcu/hr is given in following table

from	N			E			S			W		
To	E	S	W	S	W	N	W	N	E	N	E	S
Pcu/hrs	40	800	70	60	500	50	60	650	60	70	675	60

Calculate optimum cycle time for fixed time installation sketch the phasing Diagram for each phase. Draw diagram showing timing for three aspects of Complete cycle.

- Q.5 (a)** Explain co-ordinated control of signals by drawing sketch. **07**
(b) What is TSM (transportation system management)? Describe objectives and scopes of TSM. **07**

OR

- Q.5 (a)** What are the ill effects of road transport on environment? Describe in detail. **07**
(b) Explain TSM planning cycle. **07**
