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B.E / B.Tech DEGREE END SEMESTER EXAMINATIONS, November/ December 2013

CIVIL ENGINEERING BRANCH

SIXTH SEMESTER

CE 9040 – TRAFFIC ENGINEERING & MANAGEMENT

(REGULATIONS 2004)

Time: 3 Hrs

Max Marks: 100

ANSWER ALL THE QUESTIONS

Part A (10 x 2 = 20 Marks)

1. Draw the section of four lane divided Urban road and mark its components,
2. What is meant by field of vision
3. What is meant by 'Parking Accumulation'?
4. List the reasons for delay of vehicles while travelling on Urban roads.
5. What do you understand by the term "effective green"
6. How would you arrive the desirable weaving length for a rotary intersection.
7. Draw a diagram of a staggered T Junction and indicate how it is safer than a four arm junction
8. What are causes for traffic related noise generation
9. List the uses of information signs . Give two examples.
10. What is the advantage of exclusive bus lanes.

PART B (5X 16= 80 Marks)

11. (a) i) Explain the impact of vehicular emission on human beings and vegetation. [8 marks]
- ii) Explain briefly the probable causes for accidents on rural roads and suggest the preventive measures required to reduce accident occurrence. [8 marks]
12. (a) i) Explain briefly how peripheral vision varies with speed and how it is considered in designing highway elements. [8 marks]
- ii) Draw a diagram to depict speed-flow relationship and explain speed variation at various flow levels. [8 marks]

(OR)

- (b) i) Explain the vehicular characteristics that are considered for designing highway elements [8 marks]
- ii) Draw a diagram to depict speed-density relationship and explain speed variation at various density levels. [8 marks]

13. (a) i) Explain briefly how Road side interview survey is conducted to establish the origin destination of vehicles entering and leaving an area. [8 marks]
- ii) For the given Spot speed data observed at a section of highway, compute the space mean speed and time mean speed [8 marks]

Vehicle No.	Speed in Km/h	Vehicle No.	Speed in Km/h	Vehicle No.	Speed in Km/h
1	34.8	11	41.2	21	45.2
2	35.1	12	41.8	22	45.4
3	36.3	13	42.1	23	45.4
4	36.8	14	42.8	24	45.7
5	37.1	15	43.3	25	45.8
6	38.3	16	44.0	26	45.9
7	39.0	17	44.3	27	46.1
8	40.3	18	44.6	28	46.8
9	40.8	19	44.7	29	47.1
10	41.1	20	45.0	30	47.8

(OR)

- (b) i) Explain briefly a how parking accumulation of a stretch of road with the recorded parking details is computed. [8 marks]

- ii) With a neat sketch explain the LOS concept. [8 marks]

14. (a) i) With a neat diagram of a four arm rotary intersection explain the design aspects of it's elements. [6 marks]

- ii) A traffic signal is to be installed at an intersection where two six lane divided roads intersect at right angles The peak hour traffic flow observed is as follows:

Name of the Arm feeding traffic to the Intersection	Traffic Flow in PCUs/hour		
	Left	Straight	Right
North	350	706	306
East	311	575	392
South	347	730	284
West	226	597	421

Design the Phasing Pattern and green time for each phase.

(10 Marks)

(OR)

(b) i) Explain the concept of traffic Signal Co-ordination on major routes in an urban area. [6 marks]

ii) A rotary is proposed in a rural area at a location where two four lane divided roads meet each other. The peak hour traffic flow is as follows:

Name of the Arm feeding traffic to the Intersection	Traffic Flow in PCUs/hour		
	Left	Straight	Right
North	350	450	250
East	450	490	300
South	275	400	390
West	390	500	275

Design a rotary for the intersection. [10 marks]

15. (a) i) Explain briefly when road and how road pricing could be adopted for urban areas. [8 marks]

ii) Explain briefly the need and advantages of staggering of working hours in urban areas. [8 marks]

(OR)

(b) i) Write a brief notes on:
1. Vehicle licensing
2. Tidal Flow [8 marks]

ii) Explain briefly the strategies adopted to avoid right turning at intersections. [8 marks]