Reg. No.											

B.E./ B. TECH.DEGREE EXAMINATIONS, MAY 2024
Sixth Semester
CE18022 – TRAFFIC ENGINEERING AND MANAGEMENT
(Civil Engineering)
(Regulation 2018A)

TIME:3 HOURS   **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	After successful completion of this course, the students will be able to Appraise the influence of human factors, vehicle factors and road way factors in traffic design	2
CO 2	Apply the knowledge of science and engineering fundamentals in conducting traffic surveys and analyze the problem	2
CO 3	Design various types of control and regulatory measures to meet an efficient traffic network	2
CO 4	Select appropriate methods to ensure safety of the road users	2
CO 5	Apply various traffic management measures	2

PART- A(10x2=20Marks)
(Answer all Questions)

		CO	RBT LEVEL
1.	Can you write in your own words on the importance of Traffic Engineering under Indian Conditions?	1	2
2.	Explain any one road user characteristics with Indian Road Congress standards.	1	2
3.	List out various traffic surveys to be conducted for traffic studies.	2	2
4.	Differentiate 'Running Speed & Journey Speed'.	2	2
5.	Brief the Webster's optimum cycle length concept.	3	2
6.	Draw the different plan vies of road intersections.	3	2
7.	List the causes of road accidents.	4	2
8.	Explain 3 E's in road safety.	4	2
9.	Infer the word 'Tidal Flow Operation'.	5	2
10.	What do you mean by the term 'Traffic Segregation'?	5	2

PART- B (5x 14=70Marks)

			Marks	CO	RBT LEVEL
11. (a)	(i)	How do the land use characteristics influence the planning and design of traffic facilities?	(6)	1	2
	(ii)	Explain the various vehicle factors affecting traffic performance.	(8)	1	2

(OR)

(b) (i) Explain briefly the various human factors governing traffic performance. (10) 1 2

(ii) How coefficient of longitudinal skid resistance (f) various with the speed of vehicle (v)? (4) 1 2

12. (a) (i) Derive an equation for estimating average journey time and average journey speed of a traffic flow with a neat sketch. (10) 2 2

(ii) Brief on parking study. (4) 2 2

(OR)

(b) Discuss the Classified Volume Count [CVC] survey for an urban and rural road and compare the differences. (14) 2 2

13. (a) Calculate the practical capacity of a rotary intersection with the following traffic flow: (14) 3 3

(assume entry width and width of non-weaving section as 9.0 m)

From	Left Turning			Straight			Right Turning		
	Car	CV	T/W	Car	CV	T/W	Car	CV	T/W
North	197	48	95	245	95	140	143	47	77
East	175	55	75	200	45	110	190	30	100
South	225	80	100	139	50	87	160	70	90
West	215	50	117	180	52	102	250	66	100
PCU	1.0	3.0	0.5	*	*	*	*	*	*

(OR)

(b) A fixed time 2-phase signal is to be provided at an intersection having a North-South and an East-West road where only straight ahead traffic is permitted. The design hour flows from the various arms and the saturation flows for these arms are given in the following table: (14) 3 3

	North	South	East	West
Design hour flow (q) in PCU/hour	800	500	700	600
Saturation flow (s) in PCU/hour	2400	2000	3000	3000

Calculate the optimum cycle time and green time for the minimum overall delay. The time lost per phase due to starting delays can be assumed to be 2 seconds. The value of the amber period is 2 seconds. Sketch the timing

diagram for the each phase.

14. (a) Explain various typed of sign boards in detail with diagrams. (14) 4 2

(OR)

(b) Explain various typed of road markings in detail with diagrams. (14) 4 2

15. (a) Write in brief the traffic regulatory measures commonly implemented in traffic management treatment as per IRC standards with neat sketches. (14) 5 2

(OR)

(b) Write short note on the following: (14) 5 2

    (i) Intelligent Transportation System (7 marks)

    (ii) Congestion and Parking Pricing (7 marks)

PART- C (1x 10=10Marks)
(Q.No.16 is compulsory)

				Marks	CO	RBT LEVEL

16. Spot speed studies were carried out at a certain stretch of a highway with mixed traffic flow and the consolidated data collected are given below: (10) 2 3

Speed range, kmph	No. of vehicle observed	Speed range, kmph	No. of vehicle observed
0 to 10	10	50 to 60	270
10 to 20	22	60 to 70	130
20 to 30	76	70 to 80	56
30 to 40	98	80 to 90	42
40 to 50	240	90 to 100	12

Determine: (i) the upper and lower values or speed limits for installing speed regulation signs in this road stretch; (ii) the design speed for checking the geometric design elements of the highway. (use the graph sheet)

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