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B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2023

Sixth Semester

CE18022-TRAFFIC ENGINEERING AND MANAGEMENT

(Civil Engineering)

(Regulation 2018)

TIME:3 HOURS

MAX.MARKS: 100

- CO1** Appraise the influence of human factors, vehicle factors and road way factors in traffic design.
- CO2** Apply the knowledge of science and engineering fundamentals in conducting traffic surveys and analyze the problem
- CO3** Design various types of control and regulatory measures to meet an efficient traffic network
- CO4** Select appropriate methods to ensure safety of the road users
- CO5** Apply various traffic management measures

PART- A(10x2=20Marks)

(Answer all Questions)

	CO	RBT LEVEL
1 Maximum height of vehicle recommended by IRC is _____	1	1
2 Explain the interactions between land use and traffic characteristics with examples.	1	2
3 Define AADT.	2	2
4 Illustrate how desire line diagram helps in identifying potential corridors.	2	2
5 The design speed of Rotary in urban & rural areas respectively _____ & _____ (a) 40 & 25 kmph (b) 30 & 25 kmph (c) 30 & 40 kmph (d) 30 & 50 kmph	3	1
6 List the hierarchy of development of a junction.	3	1
7 List the objectives of road marking.	4	2
8 Differentiate ‘Silhouette & Reverse Silhouette’ in street lighting.	4	2
9 What is meant by tidal flow operation?	5	2
10 What is meant by ‘Automatic Toll Collection’ system?	5	2

PART- B (5x 14=70Marks)

	Marks	CO	RBT LEVEL
11(a) Write briefly on human factors influencing on traffic elements.	(14)	1	2
(OR)			
11(b) Write on vehicle factors influencing on design of highway & traffic elements	(14)	1	2

- 12(a) 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: (14) 2 3

Speed range, Kmph	No. of vehicles observed	Speed range, Kmph	No. of vehicles observed
0 to 10	16	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 at this road stretch and (ii) the design speed for checking the geometric design elements of the highway. (use graph sheet)

(OR)

- 12(b) The consolidated data collected from speed and delay studies by floating car method on a stretch of urban road of length 3.5 km, running North-South are given below. Determine the average values of (i) traffic volume, (ii) journey speed and (iii) running speed of the traffic stream along each direction. (14) 2 3

Trip No.	Direction of trip	Journey time, min-sec	Total stopped delay, min-sec	No. of vehicles overtaking	No. of vehicles overtake	No. of vehicles from opposite direction
1	N-S	6-48	1-50	3	7	270
2	S-N	7-20	1-40	4	3	190
3	N-S	7-10	1-30	5	3	290
4	S-N	7-40	2-10	3	1	220
5	N-S	6-10	1-30	3	6	270
6	S-N	8-00	2-30	2	2	190
7	N-S	6-32	1-50	2	5	320
8	S-N	7-40	1-30	3	2	190

13(a) Draw a 'Cloverleaf Interchange' and indicate the traffic movements. Also list the merits of the same. (14) 3 2

(OR)

13(b) Describe the steps involved in signal design as per IRC. (14) 3 2

14(a) Explain in detail 'accident study' and draw required diagrams. (14) 4 2

(OR)

14(b) Explain in detail various traffic signs with neat sketches. (14) 4 2

15(a) Explain various Traffic Demand Management [TDM] techniques in detail. (14) 5 2

(OR)

15(b) Write short note on: (14) 5 2

- (1) One-way street (3 marks)
- (2) Turning traffic (3 marks)
- (3) Tidal flow operation (4 marks)
- (4) Closing of side streets (4 marks)

PART- C (1x 10=10Marks)

(Q.No.16 is compulsory)

	Marks	CO	RBT LEVEL
16 Write in short the significance and scope of traffic engineering in today's context.	(10)	1	3
