BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: B.TECH **SEMESTER : VI**
BRANCH: CIVIL ENGINEERING **SESSION : SP/2025**

SUBJECT: CE438 TRAFFIC ENGINEERING AND MANAGEMENT

TIME: 3 Hours **FULL MARKS: 50**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

			CO	BL
Q.1(a)	Describe time-space diagram of traffic flow.	[5]	1	2
Q.1(b)	Compute the time mean speed and space mean speed for the following data. Also verify the relationship between them. Finally compute the density of the stream.	[5]	1	3

Speed Range	Frequency
0-10	5
10-20	15
20-30	20
30-40	25
40-50	30

Q.2(a)	Discuss the difference between mandatory lane change and Discretionary lane change.	[5]	2	2
Q.2(b)	In a two lane, one way stream of 1000 veh/h with 360 vehicles in Lane A and the remaining vehicles in lane B. 8% of the vehicles in lane A have gaps less than 1 sec and 18% of the vehicles in lane A have gaps less than 2 sec. Compute the time during which vehicles in Lane B may not change to Lane A in 1 hour. Assume driver requires one second ahead and behind in making a lane change.	[5]	2	3
Q.3(a)	Explain conflicting volume at an uncontrolled intersection.	[5]	3	3
Q.3(b)	Describe HCM method of Arterial performance measurement.	[5]	3	3
Q.4(a)	On a 2.8 km long link of road, it was found that the demand is 1000 Vehicles/hour, mean speed of the link is 12 km/hr, and the free flow speed is 27 km/hr. Assuming that the average vehicle occupancy is 1.2 person/vehicle, calculate the congestion intensity in terms of total person hours of delay.	[5]	4	3
Q.4(b)	Discuss about congestion pricing system at urban streets.	[5]	4	2
Q.5(a)	Discuss about the requirements of public transportation system in Indian context.	[5]	5	3
Q.5(b)	Explain advanced vehicle control and safety for transportation system.	[5]	5	3

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