BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP/2024)

CLASS: B.Tech **SEMESTER : VI**
BRANCH: Civil Engineering **SESSION : SP/2024**

SUBJECT: CE438 TRAFFIC ENGINEERING AND MANAGEMENT

TIME: 02 Hours **FULL MARKS: 25**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates**

			CO	BL
Q.1(a)	Discuss the differences between time mean speed and space mean speed.	[2]	1	2
Q.1(b)	Define time-space diagram of fundamental parameters of traffic flow.	[3]	1	2
Q.2(a)	The results of a speed study is given in the form of frequency distribution table. Find the time mean speed and space mean speed.	[2]	1	3

Speed range (m/s)	Frequency
1-4	2
5-8	3
9-12	5
13-16	6

Q.2(b)	The length of a road stretch used for conducting the moving observer test is 1.5 km and the speed with which the test vehicle moved is 30 km/hr. The number of vehicles encountered in the stream while the test vehicle was moving against the traffic stream is 155, number of vehicles that had overtaken the test vehicle is 15, and the number of vehicles overtaken by the test vehicle is 85. Find the flow, density and average speed of the stream.	[3]	1	3
Q.3(a)	Explain the differences between mandatory lane change and discretionary lane change.	[2]	2	2
Q.3(b)	Discuss about the types of lane changing models.	[3]	2	2
Q.4(a)	Define blockage length and average delay for the lane changing concept.	[2]	2	2
Q.4(b)	In a two lane, one way stream of 1500 veh./hour with 590 vehicles in lane A and the remaining vehicles in lane B. 11% of vehicles in lane A have gap less than 1 sec. and 21% 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.	[3]	2	3
Q.5(a)	Define the term “Capacity” of a transport facility.	[2]	3	2
Q.5(b)	Discuss about Level of service along with criteria of a transport facility.	[3]	3	3

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