



Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)



V SEMESTER B.TECH (CIVIL ENGINEERING)

END SEMESTER EXAMINATIONS, NOV/DEC 2015

SUBJECT: TRANSPORTATION ENGINEERING [CIE 309]

REVISED CREDIT SYSTEM

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

✤ Answer ANY FIVE FULL the questions.

✤ Missing data may be suitable assumed.

1A.	Explain t	he various situations	where in re-a	lignment of roads	are recommended.	3marks			
1B.	What is highway rainfall	nat is camber? Find the height of the crown with respect to edges for a state shway with two lane traffic and thin bituminous surface in an area of light nfall 2marks							
1C.	Two State Highways of two lane traffic each intersect at right angle and the line of sight available is 176m. One of the highway is designed for a speed of 75 kmph. Find the maximum speed that can be permitted on the other state highway.								
2A.	With a ne	th a neat sketch derive an equation for super-elevation.							
2B.	What are	the ideal requirement	ion curve?		2marks				
2C.	National speed of extrawide	ational Highway with two lane traffic has horizontal curve of 3° with design peed of 70 kmph. Calculate setback distance if the width of the road including strawidenillais 7.75m. Assume length of the curve greater than distance							
3A.	What are the different road user characteristics which affect the road design Discuss briefly.								
	Develop the linear regression giving the relationship between Population, work trips and school trips using the following information. Find also the future trips produced from each zone.TrafficPopulation in theTrips generated (Hundreds)Population growth								
	zone	zone (Thousands)		T	rate (%)	5marks			
3B.	1	20	Work trips	School trips	r 7.5				
Э D.	$\frac{1}{2}$	<u> </u>	20	18	1.5				
	$\frac{2}{3}$	40	12	40	7.0				
	4	28	15	15	8.5				
	5	5 60 18 16 8.0							
	6	6 80 35 10 5.5							
4A.	Write short (i). Gravity (ii). Multip	notes on: 5marks Model le Linear Regression An	alysis used in Tra	ansportation Planning	g	5marks			

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BANCH STATE A Constituent Institute of Manipal University IFED BY UFE The following data were obtained from the spot speed studies carried out at a city road during a clement (c) Lower speed group crossing congestion (d) Median-speed to check group crossing speed (d) Median-speed to check group crossing congestion (d) Median-speed and (e) Dispersion speed. Smarks 4B. Speed group No. of vehicles for the spot speed studies carried out at a city road during a comment on the results. Smarks 4B. Speed group No. of vehicles for the spot speed and (e) Dispersion speed. Smarks 5.10 400 10-15 50 15.20 80 20-25 100 23.30 150 30-35 170 35.40 4000 50-60 450 60.70 3000 >70 200 5A. Explain how climatic variation affects pavement design and performance. Smarks 9. Design the pavement for construction of a new bypass, two-lane single carriage way with the following data. Draw the neat sketch of the designed section. (i) (ii). Initial traffic in the year of completion of construction= 3500 CVPD Smarks (iii). Volicle damage factor= 2.5 (v) V) (v). Vehicle damage factor= 2.5 (v) No. of stops enroute: 10 stops				Reg. No.										
ABD The following data were obtained from the spot speed studies carried out at a city road during a certain period of time. Suggest: (a) speed limit for regulation (b) Speed to check geometric design clement (c) Lower speed group crossing congestion (d) Median-speed-and (e) Dispersion speed. Also comment on the results. Smarks 4B. Speed group No. of vehicles k mph Speed group and the results. Speed group and the results. 4B. Speed group No. of vehicles h and the results. Speed group and the results. Speed group and the results. 4B. Speed group and the results. 4B. Speed group and the results. Speed group and the results. Speed group and the results. Smarks and the results. 4B. Speed group and the results. Smarks and the results. Smarks and the results. Smarks and the results. 4B. Speed group and the results. Smarks and the results. Smarks and the results. Smarks and the results. 4B. Speed group and the results. Smarks and the results. Smarks and the results. Smarks and the results. 5A. Explain how climatic variation affects pavement design and performance. Smarks and the results. Smarks and the result and the result and the result and the res	मज्ञानं ब्रह्म Manipal	Manipa	al Institu (A Constituen	ite of Te t Institute of	ech Mai	nipa	olo I Un	gy iver	7 , N sity)	/Ia	ni	pa	1	KNOWLEDGE IS P
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