PRN:		Course Code :	UCE404

Second Year **B. Tech** End Semester Examination Winter 2024

Transportation Engineering 000134

Day and Date: Fri 29 NOV 2024 Max Marks: **100**

Time : 02:00PM To 05:00PM Duration: **03** hrs

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Explain the classification of highways according to plan	08	02	CO1
	b)	List the categories used in the classification of highways according to the planning stage.	08	02	CO1
		OR			
	b)	Define the controlling factors for highway alignments, describe in detail	08	03	CO1
Q.2		**Attempt the following**			
	a)	Calculate the extra widening required for a pavement of width 7 m. on a horizontal curve of radius 250 m if the longest wheel base of vehicle expected on the road is 7.0 m. design speed is 70 kmph.	08	04	CO1
	b)	Draw cross-section of national highway in embankments and explain its components.	08	03	CO2
		OR			
	b)	Explain the sight distance, lagging distance and braking distance.	08	03	CO2
Q.3		**Attempt any two from the following**			
	a)	State the difference between Flexible and rigid Pavements. And discuss the material components of both.	08	02	CO2
	b)	Compute the radius of relative stiffness of 15 cm thick cement concrete slab from the following data: Modulus of elasticity of cement concrete=2,10,000 kg/cm 2 Poisons ratio for concrete=0.15 Modulus of subgrade reaction= a) 3.5 kg/cm 3 ii) 7 kg/cm 3	08	04	CO2
	c)	Write note on Design of rigid pavements	08	03	CO2
Q.4		**Attempt any two from the following**			
	a)	List the desirable properties of road aggregates and the types of tests conducted on them	08	03	CO3
	b)	List the desirable properties of road aggregates and the types of tests conducted on them.	08	03	CO3
	c)	Explain the significance of the California Bearing Ratio (CBR) Test in pavement design.	08	02	CO3
Q.5		**Attempt any Two of the following**			
	a)	Describe the importance of highway drainage in maintaining road integrity.	09	03	CO3
	b)	Identify the common types of failures in flexible and rigid pavements.	09	03	CO3
	c)	Write note on importance of highway drainage.	09	04	CO4
Q.6		**Attempt any Two of the following**			
	a)	Discuss the various methods of carrying out speed and delay study	09	04	CO4

Backlog

b)	Define the term spot speed study Explain the presentation of spot speed data	09	03	CO4
c)	Explain how traffic studies like speed, volume, and delay contribute to traffic management	09	04	CO4

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Backlog