**R10** 

Set No. 1

## III B.Tech I Semester Supplementary Examinations, May - 2019 TRANSPORTATION ENGINEERING-I

## Time: 3 hours

Code No: **R31016** 

(Civil Engineering)

Max. Marks: 75

## Answer any FIVE Questions All Questions carry equal marks \*\*\*\*\*

1	a)	Explain various factors controlling the alignment of roads with sketches.	[8M]
	b)	Briefly explain the engineering surveys needed for locating a new highway.	[7M]
2	a)	Derive an expression for finding length of transition curve on horizontal alignment of highways.	[8M]
	b)	The speeds of overtaking and overtaken vehicles are 70 and 40 kmph, respectively on a two way traffic road. If the acceleration of overtaking vehicle is $0.99 \text{ m/s}^2$ , calculate the safe overtaking sight distance.	[7M]
3	a)	Explain spot speed, running speed, space mean speed, time mean speed and average speed. How are spot speed studies carried out?	[8M]
	b)	What are the different causes of traffic accidents?	[7M]
4	a)	What are the advantages and disadvantages of traffic signals?	[8M]
	b)	What are the various types of traffic islands used? Explain the uses of each.	[7M]
5	a)	What are the requirements of bituminous paving mixes?	[8M]
	b)	What are the various tests for judging the suitability of road stones? Discuss the objects of carrying out each of these tests and their advantages and limitations.	[7M]
6	a)	Discuss the effects of repeated applications of loads on pavements. Explain equivalent wheel load factors for load repetitions.	[8M]
	b)	Explain flexible and rigid pavements and bring out the point of difference.	[7M]
7	a)	Explain the terms 'modulus of subgrade reaction', 'radius of relative stiffness' and 'radius of resisting section'.	[8M]
	b)	Explain the critical locations of loading as regards wheel load stresses in cement concrete pavement. Discuss the Westergaard's concept and assumptions.	[7M]
8	a)	Briefly discuss about the method of construction of gravel roads.	[8M]
	b)	What are the materials required plants and equipment and construction steps for the construction of bituminous surface dressing.	[7M]

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