**R10** 

Set No. 1

Max. Marks: 75

## III B.Tech I Semester Supplementary Examinations, May - 2016 TRANSPORTATION ENGINEERING-I

(Civil Engineering)

Time: 3 hours

Code No: **R31016** 

## Answer any FIVE Questions All Questions carry equal marks (IRC charts may be permitted)

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1	a)	What are the policies and goals of the Second Road Development plan for 1961-1981?	[8]
	b)	What are the uses of map study in engineering surveys for highway location?	[7]
2	a)	State the factors on which the Overtaking Sight Distance depends. Explain Briefly.	[8]
	b)	A vertical summit curve is formed at the intersection of two gradients, (+) <b>3.0</b> and (-) <b>3.5</b> percent. Design the length of summit curve to provide a stopping sight distance for a speed of 65 kmph. Assume suitable data.	[7]
3	a)	Explain the various measures that may be taken to prevent accidents.	[8]
	b)	Compare (i) angle parking with parallel parking and (ii) ramp type with elevator type parking garages. Draw neat sketches.	[7]
4	a) b)	Write a note about design speed, shape of central island, radius of rotary width and width of carriageway at entry and exit, while designing a rotary. At a right angled intersection of two roads, road G has four lanes with a total width of 12.0 m and road H has two lanes with a total width of 6.8 m. The volume of traffic approaching the intersection during design hour are 900 and 820 PCU/hour on the two approaches of road G and 230 and 180 PCU/hour on the two approaches of road H. Design the signal timings as per IRC guidelines.	[8] [7]
5	a) b)	Explain the desirable properties of aggregate to be used in different types of pavement construction. What are the applications and limitations of shear, bearing and penetration tests?	[8] [7]
6	a) b)	What are the various factors to be considered in pavement design? Discuss the significance of each. Draw a sketch of flexible pavement cross section and show the component parts. Enumerate the functions and importance of each component of pavement.	[8] [7]
7	a)	Discuss the critical combination of stresses due to wheel load and temperature effects.	[8]
	b)	Compute the radius of relative stiffness of 18 cm thick cement concrete slab from the following data: Modulus of elasticity of cement concrete = 2, 14,000 kg/cm <sup>2</sup> , poisons ratio for concrete = 0.131 and modulus of sub grade reaction $K = (i) 3.2 \text{ kg/cm}^3$ and (ii) 7.4 kg/cm <sup>3</sup> .	[7]
8	a)	Write short notes about surface dressing, seal coat, bituminous concrete and mastic asphalt.	[8]
	b)	Discuss the objectives of warping joints, contraction joints and construction joints. Draw neat sketches. WWW.MANARESULTS.CO.IN	[7]

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