

Code No: **R31016**

**R10**

**Set No. 1**

**III B.Tech I Semester Supplementary Examinations, November – 2015**  
**TRANSPORTATION ENGINEERING-I**  
**(Civil Engineering)**

**Time: 3 hours**

**Max. Marks: 75**

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

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- 1 a) Discuss the general principles in the re-alignment of a highway and explain how the work is carried out. [8]  
b) Briefly discuss the historical development of road construction in India. [7]
- 2 a) Enumerate the various design factors controlling the vertical alignment of highways. [8]  
b) There is a horizontal curve of radius 55 m on a stretch of hill road with a gradient of 4.3%. Determine the grade compensation. [7]
- 3 a) Explain the various aspects investigated during parking studies. What are the uses of these studies? [8]  
b) A vehicle moving at 45 kmph speed was stopped by applying the brake and the length of skid mark was 13.5 m. If the average skid resistance of the pavement is known to be 0.65, determine the brake efficiency of the test vehicle. [7]
- 4 a) What are the advantages and disadvantages of traffic signals? [8]  
b) Draw a neat sketch of full clover leaf and show the movement of traffic. [7]
- 5 a) Briefly explain the Marshall method of mix design. [8]  
b) What are the various tests that are performed on bitumen? Briefly mention the principle and uses of each test. [7]
- 6 a) Write a note about the objectives and requirements of pavements. [8]  
b) Discuss the advantages and disadvantages of CBR method of pavement design. [7]
- 7 a) Write a note about modulus of sub grade reaction, radius of relative stiffness and radius of resisting section. [8]  
b) Compute the equivalent radius of resisting section of 28 cm slab, given that the radius of contact area wheel load is 18 cm. [7]
- 8 a) List the different methods of road construction. Enumerate their advantages and disadvantages. [8]  
b) Compare the following methods of bituminous road construction: [7]  
(i) central plant mix and road mix, (ii) hot mix and cold mix.

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