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M.E. Second Semester (Civil Engineering (Transportation Engg. & Management)) (New CGS)

13114 : Elective-II : 1) Geometric Design of Transportation Facilities : 2 SFTR 4

P. Pages : 1 | **AW - 3508**

Time : Three Hours | Max. Marks : 80

* 0 3 5 1 *

Notes : 1. All question carry as indicated marks.
2. Answer **any five** questions.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.
5. Illustrate your answer necessary with the help of neat sketches.
6. Use of pen Blue/Black ink/refill only for writing the answer book.

1. a) Derive an expression for overtaking sight distance with neat sketch. **8**

b) What are the objects of highway geometric design? List the various geometric elements to be considered in highway design. **8**

2. Attempt **any two.**

a) What are the factors on which stopping sight distance depends. **8**

b) Calculate the safe SSD for design speed of 50 kmph for (a) 2-way traffic on two lane road (b) two way traffic on a single lane road. Assume coefficient of friction = 0.35 & reaction time of driver = 2.5 second. **8**

c) Calculate the safe OSD for a design speed of 96 kmph. Assume all other necessary data. **8**

3. a) Explain summit and valley curves and the various cases when these are formed while two different gradients meets. **8**

b) State the objects of widening of pavement on horizontal curve? How is the widening of pavement introduced in field. **8**

4. Attempt **any two.**

a) Explain in brief pavement surface characteristics. **8**

b) What are the design consideration for rural and urban roads? Explain. **8**

c) Explain the terms – i) Design speed ii) Levels of service. **8**

5. a) Draw neat sketch of full cloverleaf intersection and show by arrow path of movement of traffic. **8**

b) Draw a typical speed-flow-curve & indicate the LOS. **8**

6. a) Explain grade separated intersection? State its advantages & limitations. **8**

b) Explain various design factors that are to be considered in rotary intersection design. **8**

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