M.E. Second Semester (Civil Engineering (Transpo. Engg. & Manag.)) (New CGS)

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

P. Pages : 1 **AW - 3779**

Time : Three Hours  Max. Marks : 80

Notes : 1. All question carry marks, as indicated.
2. Answer **any five** questions.
3. Assume suitable data wherever necessary.
4. Diagrams and Chemicals equations should be given 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) Explain in brief classification of rural and urban roads. **8**

b) Explain in brief design controls and criteria governing the geometric features of a highway. **8**

2. Attempt **any two.**

a) What are the objects of providing transition curve on horizontal alignment of highway. **8**

b) A NH passing through a flat terrain has a horizontal curve of radius equal to ruling minimum radius. If the design speed is 100 kmph. Calculate super elevation and extra widening. Assume necessary data. **8**

c) Derive the expression for finding stopping sight distance at grades. **8**

3. a) What are the geometric standards for expressway? Draw a typical cross-section of an expressway. **8**

b) A NH passing through rolling terrain in heavy rain fall area has a horizontal curve of radius 500m. Design the length of transition curve assuming suitable data. **8**

4. Attempt **any two.**

a) Explain the term - building line and control line. State the recommended right of way width for various classes of roads in India. **8**

b) Draw the typical cross section of NH in cutting on curved path. **8**

c) Explain in brief. **8**
- Kerbs
- Right of way
- Road margin
- Shoulder

5. a) State the advantages and disadvantages of Traffic Rotary. **8**

b) Explain with sketches **8**
- 3 way interchange
- 4 way interchange

6. a) Explain grade separated intersections, state its advantages and limitations. **8**

b) Draw a neat sketch showing of X-intersection with all approach having two way traffic. Show conflict points. **8**

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