B.E. / B.Tech. Civil Engineering (Model Curriculum) Semester-V
# PCC-CE503 / TRANSENGI3 - Transportation Engineering-I

P. Pages : 2

Time : Three Hours

Max. Marks : 80

*2201*

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Notes : 1. All questions carry equal marks.
2. Assume suitable data wherever necessary.
3. Illustrate your answers wherever necessary with the help of neat sketches.

**1.** a) Discuss the second twenty year road plan of 1961-81 and its salient features. **8**

b) Briefly outline the main features of various road patterns commonly in use. Explain with sketches the star and grid pattern. **8**

**OR**

**2.** a) Discuss various aspect investigated during parking studies. What are use of these studies. **8**

b) What are various traffic sign. Explain any one in detail. **8**

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

b) Derive an expression for finding SSD at level and at grades. **8**

**OR**

**4.** a) Valley curve is formed by a descending gradients of in 40 which meets an ascending. **8**
   i) Find the length of valley curve for a design speed of 80 kmph.
   ii) Find the position of the lowest point of valley.

b) What are the factors considered for the design of pavements? Explain. **8**

**5.** a) What are the various tests conducted on road aggregate. State IRC specification for each of them. **8**

b) Discuss the construction steps involved for WBM layer of pavements. **8**

**OR**

**6.** a) Explain CBR method for design of flexible pavements as per IRC 37-2001. **8**

b) Explain briefly "AASHO" classification system of soil. **8**

**7.** a) Enlist the various forces, Loads and stresses which are to be considered in the design of a bridge Explain any three in detail. **6**

b) What is economic span? Derive a formula to determine the economic span for Bridge. **6**

c) What are the points to be considered while selecting site for a new bridge. **4**

**OR**

**8.** a) Initial depth of foundation for a bridge pier is 3.96m. What would be final depth of foundation of a same bridge pier after calculation scouring under the pier for the following condition 300 m/sec. **6**
   i) Silt factor-1.1.
   ii) Bridge having 3 spans of 30m each.

   b) What is Afflux? How is it calculated? Comment on the significance of the calculation of afflux value. **5**

   c) Explain IRC loading for class AA. **5**

**9.** a) Discuss the purpose and types of Bearings provided in a bridge. **5**

   b) Discuss the inspection & repairs of bridges. **5**

   c) Draw the neat sketch of a typical bridge superstructure and enumerate the factors that affects the selection of superstructure. **6**

**OR**

**10.** Write detailed note on **any four**. **16**
   i) Cofferdams.
   ii) Rating of bridges.
   iii) Culverts.
   iv) Inspection of bridges.
   v) Launching of bridge girders.
   vi) Bridge piers.

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