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

13105 : Design and Construction of Pavement : 1 SFTR 3

P. Pages : 1 | AU - 3332

Time : Three Hours | Max. Marks : 80

Notes : 1. All question carry equal marks.
2. Answer **any five** questions.
3. Assume suitable data wherever necessary.
4. Illustrate your answer necessary with the help of neat sketches.
5. Use of pen Blue/Black ink/refill only for writing book.

1. a) Explain the Boussinesq's theory and how it can be used for design of highway pavement. **8**

b) Explain the effects and factors on which the intensity of first action depends. Suggest measures to prevent or reduce the adverse effects. **8**

2. a) The C.B.R value of subgrade soil is 5%, calculate total thickness of a pavement using design formula developed by the US corps of Engineers. **8**
Assume 4200 kg wheel load.
Tyre pressure = 6 kg/cm^2.

b) Discuss the importance of gross wheel load and contact pressure in stress distribution pattern and in pavement design. **8**

3. a) Describe the application of Burmister's two layer theory in pavement design. **8**

b) Explain Benkelman method of pavement design. **8**

4. a) Explain the necessity of design approach & method of strengthening of existing pavement for rigid overlay over flexible pavement. **8**

b) Describe the Westergaard's concept of temperature stresses in concrete pavement. **8**

5. a) What are the equipment's used for stabilization of soil in road construction. **8**

b) What are the desirable properties of bitumen. Compare far & bitumen. **8**

6. Attempt **any two.**

a) Explain purposes of **8**
i) Expansion joint
ii) Contraction joint

b) Explain in brief **8**
- Modulus of subgrade reaction
- Casagrande's elasticity chart.

c) Explain – Hot mix and Cold mix method of bituminous road construction. **8**

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