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M.Tech.(CTM) (E-II) (Sem.–2)

PAVEMENT DESIGN, CONSTRUCTION AND MAINTENANCE

Subject Code : CT-512

Paper ID : [72666]

Time : 3 Hrs. Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

1. **Attempt any FIVE questions out of EIGHT questions.**
2. **Each question carries TWENTY marks.**
3. **Assume any missing data suitably.**

1. What is the Functional evaluation and Structural evaluation in connection with Flexible and Rigid pavements?

2. Explain the construction procedure :

   a) Low cost roads

   b) Gravel roads

   c) WMM roads

   d) Cement Concrete roads

3. Describe the design steps involved in L.C.N system of pavement design.

4. a) Explain the Triaxial method of pavement design.

   b) A cement concrete pavement 3.75m wide has transverse joints at a spacing of 16m. Assume allowable tensile stress in steel = 1400kg/cm^2 and weight of the slab as 450kg/cm^2. Design the reinforcement for the pavement.

5. What do you mean by Highway maintenance? What are its various types?

6. What are the various pavement failures in case of flexible pavement? Explain its cause and remedial measures.

7. Determine the thickness of a concrete pavement using Westergaard's corner load formula to support a maximum wheel load of 4100kg. Allow 10% for impact. The tyre pressure may be taken as 5.5kg/cm^2. The modulus of sub grade reaction is 5.5kg/cm^3. The flexible strength of concrete may be taken as 40kg/cm^2. Use a factor of safety of 2. Also determine the distance from the corner at which the maximum stress occurs.

8. Explain CBR. What is the reason for shifting of origin of low penetration curve and what are its after effects?

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