Code: R7420106

**R7**

**B.Tech IV Year II Semester (R07) Advanced Supplementary Examinations June 2012**

**PAVEMENT ANALYSIS AND DESIGN**

**(Civil Engineering)**

Time: 3 hours Max Marks: 80

Answer any FIVE questions

All questions carry equal marks

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1 (a) What are the different types of pavement generally used in highway construction? Explain. Also give differences between flexible and rigid pavements.
(b) Explain about the various design factors influencing pavement design.

2 (a) Explain the Boussinesq's theory of stress distribution in flexible pavement structure.
(b) Calculate the deflection at the surface of a pavement due to a wheel load of 40 kN and a tyre pressure of 0.5 $MN/m^2$. The value of E of the pavement and the sub grade may be assumed as 20 $MN/m^2$.

3 (a) What are the critical stresses in rigid pavements as per Westergaard's analysis? Explain.
(b) Explain the terms 'radius of relative stiffness' and 'modulus of subgrade reaction' used in rigid pavement design.

4 Explain in detail the design procedure for a flexible pavement as per IRC method. What are the important design factors in IRC method? Explain.

5 Explain about various types of joints used in rigid pavement construction with the help of neat sketches.

6 (a) What are the desirable properties of road aggregates? Explain how these properties are related to pavement performance.
(b) Explain clearly the impact test procedure normally carried out on aggregates.

7 (a) Explain the use of geo textiles in pavement construction by giving suitable examples.
(b) Give a detailed procedure of construction of a CC pavement.

8 What are the failures normally observed in case of bituminous pavements? What are their possible causes and what remedial measures can be adopted? Explain.

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