CE-8202

B. E. (Eighth Semester) EXAMINATION, June, 2012

(Civil Engg. Branch)

PAVEMENT DESIGN (Elective-II)

Time : Three Hours Maximum Marks : 100 Minimum Pass Marks : 35

Note : Attempt five questions in all selecting one question from each Unit. All questions carry equal marks. Assume suitable data if found missing.

Unit -I

1. (a) Define equivalent single wheel load. How is it calculated graphically ? 10

(b) Discuss the various criteria of finding equivalent single wheel load. 10

Or

2. (a) What are various equivalence load factors ? Explain them through a table. 10

(b) How is effect of repetition of load analysed ? 10

Unit-II

(a) Explain the flexible pavement structure with the help of a neat sketch. 10

(b) Compare stress distribution using Boussinesque's and Burmister theory, giving neat figure. 10

Or

(a) Compare CBR method with Group Index method. 10

(b) Explain Burmister method of flexible pavement design, step by step. 10

Unit-III

(a) Discuss the Rate Load Test through neat figure. 10

(b) How temperature stresses are found in rigid pavement ? 10

Or

(a) Explain the assumptions of Westergaard's analysis. 10

(b) Calculate the stresses at interior, edge and corner regions of cement concrete pavement using Westergaard's analysis. Use the following data : 10

(i) Wheel load = 4500 kg

(ii) E of concrete = 3×10^5 kg/cm^2

(iii) Pavement thickness = 23 cm

(iv) Poisson's ratio of concrete = 0 - 1 5

(v) Modulus of subgrade reaction = 3 - 5 kg/cm^3

(vi) Radius of contact = 19 cm

Unit-IV

How rigid pavement design is done by IRC : 58 : 2002 using Fatigue concept ? Explain step by step in detail. 0

Or

8. (a) What is present serviceability index ? How rigid pavement is designed by Aashto method ? Explain step by step. 10

(b) Explain the concept of reliability of cement concrete pavement giving a neat sketch. Discuss the importance of the reliability analysis. 10

Unit-V

9. (a) How rebound deflection is determined by Bankelman beam ? 10

(b) Explain the analysis of date, obtained by Bankelman beam. 10

Or

10. (a) Flow is strengthening done by various types of overlays ? 10

(b) How is rigid overlay designed ? 10