(Pages : 3)

H – 2827

Reg. No. : .....

Name : .....

Eighth Semester B.Tech. Degree Examination, November 2019

13.805.7 : DESIGN AND CONSTRUCTION OF PAVEMENTS (C)

(2013 Scheme)

Time : 3 Hours

Max. Marks : 100

(Relevant charts and tables are permitted in the exam hall)

PART – A

Answer **all** questions.

1. Explain the principle of Burmister's three layer theory in flexible pavement design.

2. Discuss the effects of repeated application of loads on pavements. Explain equivalent axle load factors.

3. What are the objects of providing contraction joints in rigid pavements? Mention the factors to be considered.

4. What are the objects of surface and subsurface drainage system of roads?

5. What is the principle of structural evaluation of flexible pavement based on deflection study?

(5 × 4 = 20 Marks)

P.T.O.

PART – B

Answer **any one full** questions from **each** Module.

Module – I

6. (a) Discuss the importance of gross wheel load and contact pressure in stress distribution pattern and in pavement design. Illustrate with stress distribution diagram. **10**

(b) Outline the I RC 37 – 2012 recommendations for determining the thickness of flexible pavements. **10**

OR

7. Traffic studies were conducted on a stretch of six lane divided highway with flexible pavement indicated that there are 3800 CV/day in one direction. The average growth rate is 6.5% per year and the mean VDF value is 2.5. The estimated period of completing construction is 3 years after the traffic studies. Design the pavement for a design life of 12 years using IRC method. Design CBR of subgrade soil is 8%. (Assume suitable data as per IRC if necessary). **20**

Module – II

8. (a) What are the functions of tie bars in rigid pavements? What is the design principle? **10**

(b) Calculate the wheel load stresses at interior, edge and corner regions of a CC pavement using Westergaard's stress equations. Also determine the probable location where the crack is likely to develop due to corner loading. Wheel load, 5100 kg, $E = 3 \times 10^5$ kg/cm^2, pavement thickness 25 cm, Poisson's ratio = 0.15, $K = 12$ kg/cm^3. Radius of contact area is 16 cm. **10**

OR