Roll No ....

CE-7004 (1) (CBGS)
B.E. VII Semester
Examination, November 2019
Choice Based Grading System (CBGS)
Pavement Design
Time : Three Hours

Maximum Marks : 70

Note: i)   Attempt any five questions.

ii)   All questions carry equal marks.

iii)   Assume missing data suitably if required.

1. a)   Calculate ESWL of a dual wheel assembly carrying 2044 kg each for trial pavement thickness values of 150, 200 and 250 mm centre to centre spacing between the two tyres = 270 mm and clear gap between the walls of the tyres = 110 mm.   7

   b)   Explain various factors affecting the design of flexible pavement.   7

2. a)   Discuss different component of a cross-section of flexible pavement with neat diagram.   7

   b)   Write a short note on the stress distribution through various layer in flexible pavement.   7

3. Explain the plate bearing test procedure for calculation of the modulus of subgrade reaction (K) and how are the correction for the subgrade modulus, K made for a different plate size and for accounting for worst moisture conditions.   14

4. a)   What are the factors causing warping stresses in rigid pavements?   7

   b)   What are the factors affecting temperature differential in rigid pavements?   7

5. What are the function of dowel bars? Explain its design steps.   14

6. a)   Mention the causes of distress in flexible pavements.   7

   b)   Explain present serviceability index.   7

7. Design the CC pavement thickness expansion and contraction joint spacing for a wheel load of 5200 kg. Assume all data suitably.   http://www.rgpvonline.com   14

8. a)   Compute the radius of relative stiffness of 20 cm thick CC slab using the following data: 7

   Modulus of elasticity of CC = 2.1×10^5 kg/cm^2

   Poisson's ratio for concrete = 0.15

   Modulus of subgrade reaction 'k' = (i) 3.2 kg/cm^3

   (ii) 7.0 kg/cm^3

   b)   Discuss the advantages and limitations of CBR method of design.   7

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