Roll No

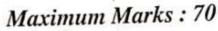
CE-7004 (1) (CBGS)

B.E. VII Semester

Examination, November 2019

Choice Based Grading System (CBGS) Pavement Design

Time: Three Hours



- Note: i) Attempt any five questions.
 - ii) All questions carry equal marks.
 - iii) Assume missing data suitably if required.
- 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.
 - Explain various factors affecting the design of flexible pavement.
- 2. a) Discuss different component of a cross-section of flexible pavement with neat diagram.
 - b) Write a short note on the stress distribution through various layer in flexible pavement.
 - 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.

- 4. a) What are the factors causing warping stresses in rigid pavements?
 - b) What are the factors affecting temperature differential in rigid pavements?
- What are the function of dowel bars? Explain its design steps.
- 6. a) Mention the causes of distress in flexible pavements. 7
 - b) Explain present serviceability index.

- Design the CC pavement thickness expansion and contraction joint spacing for a wheel load of 5200 kg. Assume all data suitably.
- 8. a) Compute the radius of relative stiffness of 20 cm thick CC slab using the following data:

 Modulus of elasticity of CC = 2.1 × 10⁵ kg/cm²

 Poisson's ratio for concrete = 0.15

 Modulus of subgrade reaction 'k' = (i) 3.2 kg/cm³

 (ii) 7.0 kg/cm³
 - b) Discuss the advantages and limitations of CBR method of design.



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