

Roll No. ....

**24382**

**B. Tech. (Civil) 6th Semester**

**Examination – May, 2015**

**TRANSPORTATION ENGINEERING - II**

**Paper : CE-310-F**

**Time : Three Hours ]**

**[ Maximum Marks : 100**

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

**Note :** (i) Question No. 1 is *compulsory*.

(ii) Each question carries equal mark. (20 marks).

(iii) Students have to attempt 5 questions in total at least one question from each section.

(iv) Use of is IS 456-2000 is allowed.

(v) Assume suitable data if missing.

**1. Write short notes on the following :      8 × 2.5 = 20**

(i) Burnmister's method

(ii) Frictional stresses

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(iii) Fiber reinforced concrete pavements

(iv) Tack coat

(v) Overlays

(vi) Hair pin bends

(vii) Internal rate of return method

(viii) Pilot tunnel

**SECTION - A**

2. Explain the various method of flexible pavement design. Briefly indicate the basis of design in each case. 20

3. (a) What are the considerations for design of rigid pavement? 10

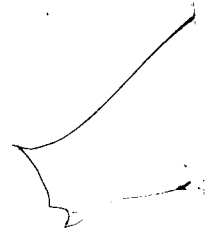
(b) Calculate the warping stresses at interior, edge and corner for a concrete pavement of thickness 25cm with transverse joints at 5.5 spacing. The width of slab is 3.8m. For concrete  $E = 3 \times 10^5 \text{ kg/cm}^2$  and  $\mu = 0.15$ ,  $K = 5 \text{ kg/cm}^3$  Temperature differential is 0.9 C per cm. assume thermal coefficient for concrete as  $10 \times 10^{-6}$  per °C. 10

**SECTION - B**

4. (a) Discuss the methods of earth excavation for road construction and the uses of various equipments. 10
- (b) Enumerate the steps for the preparation of sub grade. 10
5. Compare the following method of bituminous road construction : 20
- (a) Central plant mix and road mix method
- (b) Hot mix and cold mix

**SECTION - C**

6. Explain the necessity of design approach and method of strengthening of existing pavement for the following cases : 20
- (a) Flexible overlay over rigid pavement
- (b) Rigid overlay over rigid pavement
7. (a) Discuss how the problem of road construction in water logged areas may be solved ? 10
- (b) Explain briefly various problems in hill road construction and how they are overcome. 10



**SECTION - D**

8. (a) Explain benefit cost ratio method and its significance. 10
- (b) Explain briefly various factors affecting the vehicle operation cost. 10
9. Write short note on the following : 20
- (a) Heading and bench method
- (b) Compressed air tunneling
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