

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 : $8 \times 2.5 = 20$

(i) Burnmister's method

(ii) Frictional stresses

24382-4800-(P-4)(Q-9)(15)

P. T. O.

- (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 10×10^{-6} per °C. 10

24382-4800-(P-4)(Q-9)(15) (2)

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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