

Roll No. 3322195

24382

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

Examination – May, 2014

Transportation Engg. - 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 : Answer any *five* questions selecting first question as *compulsory*.

1. (a) What do you understand by mud pumping and map cracking ? 4
- (b) Explain function of dowel bars and tie bars. 6
- (c) What do you understand by Mastic Asphalts 5
- (d) Explain net present value method of cost analysis. 5

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2. (a) Explain the thickness design procedure with the help of Burmister's Method. 10

(b) Determine the spacing between contraction joints for 3.5 m slab having thickness of 20 cm and $f=1.5$ for reinforcement cement concrete using 1 cm dia bar at 0.30 m spacing. 10

3. Determine the warping stress at interior, edge, and corner regions in a 25 cm concrete pavement with transverse joint at 11 m interval and longitudinal joints at 3.6 m interval. Assuming the following data -
 $K = 6.9 \text{ kg/cm}^3$ $a = 15 \text{ cm}$ $e = 10 \times 10^{-6}$
 $E = 3 \times 10^5 \text{ kg/cm}^2$ $\mu = 0.15$ $C_x = 1.03$ $C_y = 0.55$ 20

4. (a) Describe important IRC recommendations for the CBR method of design. 10

(b) Explain materials used, specification and construction procedure for W.B.M. pavement. 10

5. Explain the following terms. 20

(a) Surface dressing

(b) B.U.S.G.

(c) Working of hot mix plants.

(d) Rollers and their types.

6. (a) Explain principal, procedure and analysis of data for Benkelman Beam device. 13

(b) How the flexible overlay over rigid pavement is provided ? 7

7. Explain the following terms.

- (a) Hair pin bends.
- (b) Floating gradient.
- (c) Resisting length.
- (d) Cliff galleries with sketch.

8. (a) Explain the following methods of driving tunnel in rocks. 10

- (i) Heading and bench method.
- (ii) Full face method.

(b) Compare net present value method with internal rate of return method. 10

9. (a) How the highway finance in India is done ? Discuss various sources of revenue. 10

(b) Discuss the advantages and limitation of various sections of tunnels. 10

