



(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 100502

Roll No.

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B. Tech.

(SEM. V) (ODD SEM.) THEORY
EXAMINATION, 2014-15
TRANSPORTATION ENGINEERING - I

Time : 2 Hours]

[Total Marks : 50

- Note :**
- (1) Attempt all questions.
 - (2) All questions carry equal marks.
 - (3) If required any missing data, then choose suitably.

1 Attempt any FOUR parts of the following : **3.5×4=14**

- (a) Explain Bombay road plan.
- (b) Explain maximum and minimum super elevation in brief.
- (c) Calculate the stopping sight distance for design speed of 100 kmph. Take the total reaction time 2.5 seconds and coefficient of friction = 0.35.
- (d) Explain bituminous bound macadam and Asphaltic concrete.
- (e) Derive the expression for calculating the overtaking sight distance on a highway.

- (f) Design the super elevation required at a horizontal curve of radius 300 m for speed of 60 kmph. Assume suitable data.

2 Attempt any TWO parts of the following : **6×2=12**

- (a) Write the short notes on (i) Thirtieth highest hourly traffic volume (ii) Traffic volume study.
- (b) Enumerate the steps in the construction of cement concrete pavement.
- (c) Determine the spacing between contraction joints for 3.5 meter slab width having thickness of 20 cm and $f = 1.5$, for the following two cases.
 - (i) For plain cement concrete, $S_c = 0.8 \text{ kg/cm}^2$
 - (ii) For reinforcement cement concrete, 1.0 cm dia. bars at 0.30 m spacing.

3 Attempt any TWO parts of the following : **6×2=12**

- (a) Calculate the length of transition curve for a design speed of 80 kmph at horizontal curve of radius 300 m in rural area. Assume suitable data.
- (b) What is traffic rotary ? What are its advantages and limitations in particular reference to Indian conditions ?
- (c) Explain IRC method of rigid pavement design.

Attempt any TWO parts of the following : **6×2=12**

- (a) Explain the CBR method of pavement design. How is this method useful to determine thickness of component layers ?
- (b) Discuss the various types of Traffic signals.
- (c) Write the short notes on the following :
 - (i) Sheet asphalt
 - (ii) Mastic asphalt.