

Roll No.

24288

**B. Tech 5th Sem. (Civil Engg.)
Examination – December, 2014**

TRANSPORTATION ENGG.-I

Paper : CE-303-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 : Attempt *five* questions in all, selecting *one* question from each Section. Question No. 1 is *compulsory*. All questions carry equal marks. Assume suitable data if missing.

1. Write short notes on the following : $2.5 \times 8 = 20$

- (i) Macadam Roads
- (ii) Perception Time
- (iii) Cant deficiency
- (iv) PCU value

- (v) Toughness of aggregate
- (vi) Coning of wheel
- (vii) Switches
- (viii) Function of shaft in tunnel

SECTION – A

2. (a) What factors are considered in finalising 20-year (1961-81) plan ? 10
- (b) What is final location survey ? 10
3. (a) Find the stopping sight distance for a design speed of 65-kmph. Assume suitable data. What are sight distance requirements at a gradient of 1 in 40. 10

(Hint for Solution : Assume total reaction time as 2.5 second and design coefficient of friction as 0.36; find the stopping sight distances for level, ascending and descending grades).

- (b) Why are overtaking zones provided ? What is the basis of deciding its length ? 10

SECTION – B

4. (a) What are the various requirement of an ideal highway alignment ? Also explain factor effecting alignment. 10
- (b) Explain the level of service concept while deciding the design capacity of a road. 10

5. (a) Explain CBR test and the test procedure for laboratory and field test. 10
- (b) Discuss the desirable properties of bitumen. Compare tar & bitumen. 10

SECTION – C

6. (a) What are the problems in having two gauges in a country ? 10
- (b) What is sleeper density ? What sleeper density is adopted on Indian railway ? 10
7. State reason for the following : 4 × 5 = 20
- (a) Broken stone ballast is best
- (b) Gravel should be screened before it is used on a railway track.
- (c) Ballast must be provided on a railway track.
- (d) Ballast is not spread over the sleeper.

SECTION – D

8. Write down short notes on : 4 × 5 = 20
- (a) Ruling Gradient.
- (b) Junction.
- (c) Yards.
- (d) Semaphore Signals.

9. (a) State the classification of tunnels. 10
- (b) What factors decide the method to be adopted for tunneling ? 10
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