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53 (CE 502) TREN

2019

TRANSPORTATION ENGINEERING-I

Paper : CE 502

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer **all** questions.

1. (a) Explain the role of road transportation in the development of any country.

5

- (b) Explain the objectives of the following :

10

- (i) IRC
- (ii) CRF
- (iii) HRB
- (iv) CRRI
- (v) CRF



Contd.

- (c) What are the requirements of ideal road alignment? 5
2. (a) List and explain various surveys required for highway alignment. 10
- (b) Explain the meaning of Right of way and indicate the factors on which it depends. 5
- (c) Explain with sketches, how restrictions to sight distance occurs on highways. 5
3. (a) What are the methods of classification of roads? Mention their respective classification of road. 5
- (b) What are the objectives of providing transition curves? 5
- (c) Explain how the CBR value of the given soil is found in the lab. 10
4. (a) The speeds of overtaking and over taken vehicles are 70 and 40 *kmph* respectively on a two-way traffic road. The average acceleration during overtaking may be assumed as $0.99m/s^2$.

(i) Calculate safe OSD.

(ii) What is the min length of overtaking zone?

(iii) Draw the neat sketch of overtaking zone. 10

(b) Explain various methods carried out for origin and destination studies. 10

5. (a) Explain the following: 10

(i) Crashing test on aggregates

(ii) Abrasion test on aggregates.

(b) For an NH running on plain terrain, design all geometric design elements. Assume the required data suitably. 10

