

Roll No. ....

## OLE-3202

**B. Tech. 5th Semester (Civil Engg.)**

**Examination – April, 2021**

**HIGHWAY ENGG.-I**

**Paper : PCC-CE-303-G**

*Time : Three hours ]*

*[ Maximum Marks : 75*

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*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.*

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**Note :** Question No. 1 is *compulsory*. Attempt *five* questions in all, by selecting *one* question from each Section. Assume suitable data if missing.

1. Write short notes on the following :  $2.5 \times 6 = 15$
- (a) Fact finding surveys
  - (b) PCU value
  - (c) Toughness of aggregate
  - (d) Spot speed study
  - (e) Diverging conflicts
  - (f) Straightrun bitumen

## SECTION – A

2. (a) What are the significant recommendations of Jayakar Committee Report ? Mention how this helped in road development in India. 7.5
- (b) What is final location survey ? 7.5
3. (a) Compare the construction methods of Telford and Macadam; bring out the point of differences. 7.5
- (b) What is the importance of Nagpur road plan in highway planning of our country ? Explain the plan formula and the salient features of the plan. 7.5

## SECTION – B

4. (a) Find the stopping sight distance for a design speed of 90 kmph. Assume suitable data. What are sight distance requirement at a gradient of 1 in 30 ? 7.5
- (b) Explain Right of way with neat sketch. 7.5
5. (a) Why overtaking zones are provided ? What is the basis of deciding its length ? Draw a neat sketch and show the sign to be installed and their position. 7.5
- (b) Calculate the length of transition curve for a design speed of 75 kmph at horizontal curve of radius 350 mm in a rural area. Assume suitable data. 7.5

### **SECTION – C**

6. Explain CBR and the test procedure for laboratory and field test. How are the results of the test obtained and interpreted ? 15
7. What are the desirable properties of bituminous mixes ? What are the steps in bituminous mix design ? Discuss briefly. 15

### **SECTION – D**

8. What is traffic rotary ? What are its advantages and limitations, in particular reference to traffic condition in India ? 15
9. Explain the following : 15
- (a) Geographic Information Systems
  - (b) Techniques for ITS-Detectors
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