

Roll No. : .....

Total No. of Questions : 9 ] [ Total No. of Pages : 4

**24382**

**B.Tech. (Civil) 6th Semester (Supplementary)  
Examination, July-2021  
(F Scheme)**

**TRANSPORTATION ENGINEERING-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 :-** Attempt five questions in all, selecting one question from each Section. Question No. I is compulsory. All questions carry equal marks.

1. (i) What are the general causes of pavement failures ?
- (ii) What are the critical wheel load positions in the rigid pavement ? According to you which is more critical ?

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- (iii) State the desirable properties of road aggregate.
- (iv) What are called pot holes ? How are they formed ?
- (v) List the types of cracks formed in the cement concrete roads.
- (vi) What are the pavement roughness index ?
- (vii) What is the elongation index ?
- (viii) What is the serviceability of pavements ?

**Section-A**

2. (a) Explain the CBR method of pavement design. How is this method useful to determine the thickness of components layers ? <https://www.mdustudy.com>
- (b) Explain group index method of pavement design. What is the limitation of this method ?
3. (a) Find the spacing between contraction joints for a 3.5 m slab width having a thickness of 22 cm for :
  - (i) Plain concrete slab
  - (ii) RCC slab

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The allowable tensile stress values in concrete and steel are 0.8 and 1400 kg/m<sup>3</sup>, coefficient of friction is 1.5.

- (b) What is the consideration for design of rigid pavement ?

**Section-B**

4. (a) What are the problems in the construction of high embankments over weak foundation soils ? How are the various problems deal with ?
- (b) Discuss the uses and limitation of reinforced cement concrete and prestressed concrete pavements for highways.
5. What are the various types of bituminous construction in use ? Discuss the advantages and limitation of each ?

**Section-C**

6. Explain how the maintenance of the following pavements are carried out ?
- (a) Earth roads
- (b) Bituminous surface
- (c) Cement concrete pavements

7. (a) Specify the design approach for surface drainage system of a highway.
- (b) Indicate how the filler material is designed for use in sub-surface drainage system.

**Section-D**

8. (a) Explain various factors affecting the vehicles operation cost.
- (b) Write short note on highway finance.
9. Explain the following :
- (a) Needle beam method
- (b) Full face method
- (c) Drill methods
- (d) Compressed air tunneling