

Section D

7. Explain in detail with the help of figure the incremental launching method of construction. What are advantages/disadvantages it has over staging method ? **15**
8. Categorize the inspection of maintenance of a bridge. How will you identify and repair the corrosion in a plate girder bridge ? **15**

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Roll No.

18BB1655

M. Tech. EXAMINATION, May 2019

(Second Semester)

(C Scheme) (Main Only)

CE(SE)

CES524C

DESIGN AND CONSTRUCTION OF BRIDGE
SUPERSTRUCTURES

Time : 3 Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all. However, a student should attempt at least *one* question from each Section. Use of Indian Standards

is allowed. Any data if missing can be suitably assumed. Use of scientific calculator is allowed.

Section A

1. What are the hydraulic, social, technical and economical factors which affect the ideal site and type of bridge ? **15**
2. How are wind and seismic forces considered in the design of road and railway bridges ? **15**

Section B

3. Design a reinforced concrete slab culvert for a two lane 7.5 m carriageway on a state highway crossing. It has 1 m wide footpath on both sides. The clear span is 8 m. Loading is as per class A tracked vehicle. M 30 grade concrete and Fe 500 are to be used. The design must confirm the relevance of IRC codes. **15**

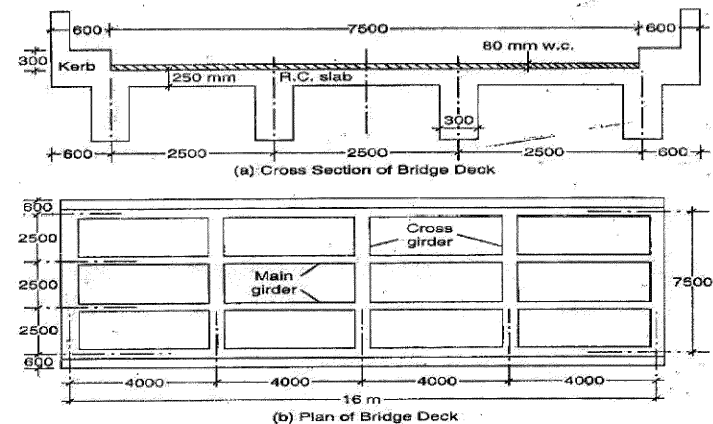
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4. Discuss briefly the design procedure of reinforced concrete rocker bearing. Sketch a typical reinforced concrete rocker bearing suitable for supporting the girder of tee beam and slab bridge deck. **15**

Section C

5. The arrangement made for a RCC Tee beam and slab deck of a bridge has been shown in figure. Design the exterior girder for flexure using M 25 grade of concrete and Fe 415 grade of steel for IC Class 70R tracked vehicle. **15**



6. Discuss the advantages of bowstring girder over two hinged arch in arch bridges. How it is designed ? **15**

(2-35/14) M-

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P.T.O.