

B.Tech. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

June, 2017

00634

BICEE-010 : ANALYSIS AND DESIGN OF BRIDGES

Time : 3 hours

Maximum Marks : 70

Note : *Attempt any five questions. All questions carry equal marks. Use of relevant IRC and IS codes are permitted. Assume any missing data suitably.*

1. (a) What are the factors considered while selecting the site for a bridge ? 7
- (b) Explain any method of determining the design discharge from a catchment of a natural stream. 7
2. (a) Describe IRC standard live loads briefly. 7
- (b) Enlist various components of a bridge and briefly explain the function of any one. 7

3. Provide preliminary dimensions for a slab culvert to suit the following data :

Effective span = 5.5 m

Thickness of wearing coat = 75 mm

Width of road = 7.5 m

Consider IRC class 70R loading and sketch the details of reinforcements.

14

4. Explain how the deck slab of a T-beam bridge is designed. Provide a neat sketch of a cross-section of such a bridge.

14

5. (a) Describe a fixed bearing used for girder bridges briefly.

7

- (b) Provide a neat sketch of a sliding bearing.

7

6. (a) Briefly discuss the merits of constructing steel plate girder bridges in comparison to concrete bridges.

7

- (b) Provide neat sketches of Lap and Butt joints provided in steel construction.

7

7. (a) Discuss the advantages of pre-tensioned and post-tensioned bridges briefly.

7

- (b) Enlist various types of bridges and provide a line sketch of any one type.

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