

Roll No.

Total Pages : 2

BT-8/M-20

38222

BRIDGE ENGG.

Paper-CE-402N

Option-I

Time Allowed : 3 Hours]

[Maximum Marks : 75

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. All questions carry equal marks. Assume suitable data if necessary and state clearly. IS : 456-2000 and IRC codes are allowed.

UNIT-I

1. (a) List the various loads and stresses considered for the design of bridges. 7
- (b) Give the various classifications of bridges. 8
2. (a) What are the necessary investigations and essential data required before the construction of bridge? 7
- (b) What is clearance and width of carriage way? Explain with suitable diagram. 8

UNIT-II

3. Explain the various types of IRC Loadings in the design of highway ridger with the help of suitable sketches. 15

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4. Design a R.C.C. culvert to be constructed over National Highway for the following data : 15
- (i) Loading = IRC class AA Loading.
 - (ii) Carriage width = 7.50 m
 - (iii) Kerb width = 700 mm on both side.
 - (iv) Clear span = 6.0 m.

UNIT-III

5. List the various types of steel bridges and explain one in detail. 15
6. How will you design the various components of T-beam bridge? 15

UNIT-IV

7. Define Bearings. What are its types? Explain one in detail with neat sketches. 15
8. (a) Difference between Pier and abutment with diagram. 7
- (b) Design a well foundation for the Pier of a major highway bridge to suit the following data : 8
- Internal diameter of well = 3.0m
 - Depth of well = 22m below bed level
 - Type of soil strata = (clay), M20 Grade
 - Material = M20 Grade of concrete
 - = Fe 415 Grade of HYSD bars.