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002502

Jan. 2022
B.Tech. (Civil) - V SEMESTER
Structural Engineering (PCC-CE303)

Time : 90 Minutes] [Max. Marks : 25

Instructions :

1. *It is compulsory to answer all the questions (1 mark each) of Part-A in short.*
2. *Answer any three questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART-A

1. (a) What is a structural engineer? (1)

(b) What is the behaviour and properties of concrete and steel? (1)

(c) What are the types of truss structures? (1)

(d) What is a truss? (1)

(e) What is a beam and column? (1)

(f) Which IS code is used for design loads for buildings and structures for wind load? (1)

(g) Write the relation between design wind speed and design wind pressure? (1)

(h) What is compression member? (1)

(i) What is prestressed concrete? (1)

(j) What is the degree of static indeterminacy of a rigid-jointed space frame? (1)

PART-B

2. (a) What is determinate and indeterminate structures? (3)

(b) Define under-reinforced and over-reinforced section. (2)

3. (a) What is meant by structural fire protection? (2)

(b) Write the steps involved in design of reinforced concrete slab. (3)

4. Design the reinforcement in a column of size 400 mm × 600 mm subjected to an axial load of 2000 kN under service dead load and live load. The column has an unsupported length of 4 m and effectively held in position and restrained against rotation in both ends. Use M 25 concrete and Fe 415 steel. (5)

5. (a) List the different types of loads considered in design of steel structures? (3)

(b) State the different modes of failures of tension members? (2)

6. (a) What are Cable Structures and its true shape ? (2)

(b) What is the main advantage of prestressed concrete bridge deck? (3)
