



Printed Pages : 3

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(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 8539

Roll No.

B. Arch.

(SEM. II) EXAMINATION, 2006-07

AR – STRUCTURES - II

Time : 3 Hours]

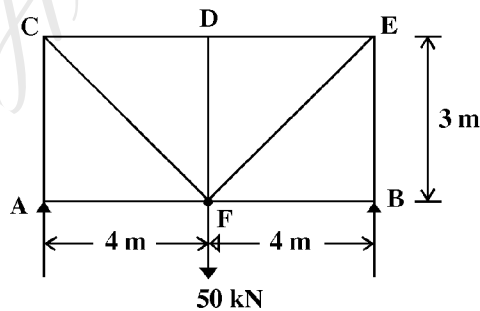
[Total Marks : 50

- Note :*
- (1) Attempt all questions.*
 - (2) All questions carry equal marks.*
 - (3) Assume any missing data.*

1 (a) Explain methods of analysis of trusses 5

OR

- (a) Write assumption of analyzing a truss, its member with force sign convention.
- (b) Find member forces in following truss. 5



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[Contd...

- 2 (a) Show how section modulus is related with strength of a beam also write pure bending equation. 5

OR

- (a) Write relation of eccentricity with cross section of columns in case of direct and bending stresses combined.
- (b) A cast iron pipe of external diameter 70 mm and 14 mm thickness 6 m long, is fixed at one end. The pipe carries a point load of 40 kN at free end. Calculate the maximum bending stress induced. 5

- 3 Derive expression and diagram for shear stress distribution of I-section beam. Explain use of shear stress and bending stress diagrams. Show it for rectangular, triangular and circular section beams. 10

- 4 Explain moment area method and find slope and deflection of a cantilever beam subjected to point load 20 kN at free end and UDL of 15 kN/m on full span. 10

OR

- 4 Derive formula for slope and deflection for simple supported beam subjected to UDL on full span.

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[Contd...

- 5 Discuss in brief Rankine's theory and discuss Euler's theory for columns with hinged at both ends. **10**

OR

- 5 Calculate the safe load on hollow cast iron column fixed at ends, its external diameter is 150 mm and 10 mm thickness, length 6 m, $E = 90 \text{ kN/sqmm}$ and factor of safety 5, Euler's load. Also write types of columns.

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