

# CBCS SCHEME

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15ARC52

## Fifth Semester B.Arch. Degree Examination, July/August 2021 Materials and Methods in Building Construction – V

Time: 4 hrs.

Max. Marks: 100

- Note: 1. Answer any FIVE full questions.  
2. Assume any missing data and scale suitably.  
3. Provide neat sketches wherever necessary.*

- 1 a. Explain with sketches different types of steel trusses. (08 Marks)  
b. An AC sheet roof with angular section truss roof system has to be provided for a workshop building of size 12 m × 20 m. Draw following details:  
(i) Key plan – 1:100 scale (03 Marks)  
(ii) Sectional Elevation – 1:50 scale (06 Marks)  
(iii) Any 1 junction detail – 1:5 scale (03 Marks)
- 2 a. Provide following construction details of tubular steel truss for a building of size 12m × 18m.  
(i) Key plan – 1:100 scale (03 Marks)  
(ii) Sectional elevation – 1:50 scale (05 Marks)  
(iii) Any one detail – 1:5 scale (03 Marks)  
b. Write short notes on:  
(i) North light truss (03 Marks)  
(ii) Multi Bay truss (03 Marks)  
(iii) Cantilever truss (03 Marks)
- 3 Write short notes on:  
a. PEB structures (05 Marks)  
b. Truss roof coverings (05 Marks)  
c. Multi bay barrel vaults (05 Marks)  
d. Stiffening beams and edge beams (05 Marks)
- 4 A pre engineered building is required for an industrial building of 12 m × 24 m and has clear height of 6m. Provide following details:  
a. Key plan – 1:100 (07 Marks)  
b. Section showing portal frames – 1:100 scale (07 Marks)  
c. Any 2 details – 1:10 scale (06 Marks)
- 5 Explain with sketches:  
a. Hyperbolic parabola (05 Marks)  
b. Conoid (05 Marks)  
c. Hyperboloid (05 Marks)  
d. North light shells (05 Marks)
- 6 a. Explain with sketches folded plate structures. (10 Marks)  
b. Write short notes on metal domes. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

- 7 Explain the construction of a space frame for an exhibition area of size  $16\text{m} \times 24\text{m}$  with the following details:
- a. Roof plan showing space frame – 1:100 scale (08 Marks)
  - b. Sectional elevation – 1:50 scale (06 Marks)
  - c. Any 2 details – 1:5 scale (06 Marks)
- 8 Write short notes on:
- a. Tensile structures (10 Marks)
  - b. Pneumatic structures (10 Marks)
- 9 Write short notes on:
- a. FRP (04 Marks)
  - b. Acrylic (04 Marks)
  - c. Polycarbonate (04 Marks)
  - d. Gypsum (04 Marks)
  - e. POP (04 Marks)
- 10 Explain the waterproofing details with the help of explanatory sketches.
- a. Toilet water proofing (10 Marks)
  - b. Terrace water proofing (10 Marks)

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