

CBCS SCHEME



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15ARC52

Fifth Semester B.Arch. Degree Examination, Feb./Mar. 2022 Materials and Methods in Building Construction – V

Time: 4 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 Design and L-angle truss roofing system for a hall measuring 16 m × 20 m. Draw the following construction details:
- Roof plan to a scale of (1:100) (07 Marks)
 - Section through the roof (1:100) (07 Marks)
 - Ridge cap details to a scale of (1:50) (06 Marks)

OR

- 2 Provide the details for a tubular steel truss for a building of size 10 m × 20 m. Give the following construction details:
- Roof plan to a scale of (1:100) (07 Marks)
 - Detail of fixing of roofing sheet to the steel truss (1:5 scale) (07 Marks)
 - Detail of gutter to a scale of (1:5) (06 Marks)

Module-2

- 3 An industrial building of size 20m × 30m has to be provided with a pre-engineered structure. Provide the following construction details.
- Roof plan to a scale of (1:100) (08 Marks)
 - Section showing portal frame (1:100) (08 Marks)
 - Gutter detail to a scale of (1:10) (04 Marks)

OR

- 4 Explain briefly the construction details for the following structures with supportive sketches. Give the advantages and disadvantages of each type of structure.
- Shell roof (07 Marks)
 - Space frames (07 Marks)
 - Folded plate roof (06 Marks)

Module-3

- 5 Give the details of construction of a hyperbolic paraboloid roof for a structure of size 10m × 15 m. Give the reinforcement details.
- Plan to a scale of (1:100) (10 Marks)
 - Cross section to a scale of (1:100) (10 Marks)

OR

- 6
- Write short notes on the principles of construction of a geodesic dome with explanatory sketches showing the plan and section. (15 Marks)
 - Draw a sketch of the joinery details. (05 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.

Module-4

- 7 A space frame is required to be designed for a hall of size 20m × 15m. Provide the following drawings.
- a. Roof plan to a scale of (1:100) (06 Marks)
 - b. Partial section to a scale of (1:50) (06 Marks)
 - c. Detail at node (scale 1:5) (08 Marks)

OR

- 8 Explain the principles and methods of construction with the help of sketches.
- a. Pneumatic structures (10 Marks)
 - b. Tensile structures (10 Marks)

Module-5

- 9 Explain the properties of the following plastics along with the application stating the advantages and disadvantages of each: Acrylics, polycarbonates and fiber reinforced plastics. (20 Marks)

OR

- 10 a. Explain the different water proofing components used in the construction industry. (10 Marks)
b. With the help of neat sketches, illustrate the method of water proofing for a basement. (10 Marks)
