

CBCS SCHEME

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15ARC52

Fifth Semester B.Arch. Degree Examination, Aug./Sept.2020 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 a. Define Truss. List the various types of Steel trusses with sketches. (05 Marks)
- b. List the advantages and disadvantages of steel trusses over conventional roofs. (10 Marks)
- c. List the various types of roofing materials that can be used to roof trusses. (05 Marks)

OR

- 2 A factory needs a column free space of 9.0m × 4.0m. Design a suitable truss using angular sections for the same.
 - a. Draw key plan and section to a suitable scale with all parts labeled and dimensions given. (08 Marks)
 - b. Draw the roofing detail with purlin and rafter detail to a suitable scale. (06 Marks)
 - c. Draw the Gutter and support detail to a suitable scale. (06 Marks)

Module-2

- 3 a. Define Portal frames. List the various types of portal frames with the help of neat sketches. (10 Marks)
- b. A transformer manufacturing plant needs a column free space of 20m × 4m. Design a rigid frame structure for the same. (05 Marks)
- c. Draw any one detail to a suitable scale. (05 Marks)

OR

- 4 Write short notes with explanatory sketches for
 - a. Shell structures (10 Marks)
 - b. Space frames (10 Marks)

Module-3

- 5 A hall of size 15m × 30m is to be designed using a multi bay Barrel vault system provide the following details:
 - a. Key plan and section – 1:100 (08 Marks)
 - b. Enlarged section with reinforcement – 1:20 (06 Marks)
 - c. Detail of edge beam with gutter detail – 1:10 (06 Marks)

OR

- 6 A sports complex needs an R.C.C folded plate roof for an area of size 20 × 30m × 5m height. Draw the following details.
 - a. Key plan and section – 1 : 100 (08 Marks)
 - b. Enlarged section – 1 : 20 (06 Marks)
 - c. Gutter detail – 1 : 10 (06 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 Design a space frame structure for an area of 20×15m. Provide the following details :
- a. Roof plan and section (08 Marks)
 - b. Partial Enlarged section showing connector details (06 Marks)
 - c. Type of support system. (06 Marks)

OR

- 8
- a. With the help of sketches explain Tensile Roofs. (05 Marks)
 - b. List the different types of tensile roofs and the roofing material used for the same. (10 Marks)
 - c. Explain the concept of pneumatic structures with the help of sketches. (05 Marks)

Module-5

- 9 Write short notes on the following :
- a. Water proofing in Basements and toilets (12 Marks)
 - b. Sealants and their application in the building industry. (08 Marks)

OR

- 10 Write short notes on :
- a. Applications of recycled plastic in the building industry. (10 Marks)
 - b. Uses of plastic in the interiors of a residence. (10 Marks)
