

CBCS SCHEME

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15ARC52

Fifth Semester B.Arch. Degree Examination, Jan./Feb.2021 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 Provide the following construction details of tubular truss for a building of size 12m×18m
- Sectional elevation of tubular truss – 1 : 50 (10 Marks)
 - Metal sheet roof fixing detail – 1 : 10 (05 Marks)
 - Gutter detail – 1 : 5 (05 Marks)

OR

- 2 A north light truss system with lattice girder is required for a building of size 16m×24m. Draw the following construction details. [L-Angle truss 8 m span – 3 bays]
- Sectional elevation of L-angle truss and lattice girder – 1 : 50 (12 Marks)
 - Ridge cap detail – 1 : 5 (04 Marks)
 - Gutter detail – 1 : 5 (04 Marks)

Module-2

- 3 A preengineered building is proposed for an industrial building of size 16m×36m×6m. Provide the following construction details :
- Roof plan 1 : 100 (08 Marks)
 - Section showing portal frame 1 : 50 (08 Marks)
 - Section showing fixing of siding/cladding 1 : 10 (04 Marks)

OR

- 4 Provide construction details of long span multibay barrel vault roof for 27 m×18m×4.5m with each barrel is 9.0 m wide.
- Roof plan – 1 : 100 (08 Marks)
 - Sectional Elevation of vault roof – 1 : 50 (08 Marks)
 - Gutter detail at edge beam – 1 : 10 (04 Marks)

Module-3

- 5 Provide construction details for RCC umbrella roof formed by fan hyperbolic paraboloid shells supported on a central column for an area 12m×12m×4m
- Roof plan – 1 : 50 (08 Marks)
 - Sectional elevation of inverted umbrella shell roof – 1 : 50 (08 Marks)
 - Compression rib detail – 1 : 5. (04 Marks)

OR

- 6 Provide the construction details with symmetrical V-Shaped RCC folded plate roof for a building of size 25m×20m×5.5m.
- Roof plan – 1 : 100 (08 Marks)
 - Section – 1 : 50 (08 Marks)
 - Gutter detail – 1 : 10 (04 Marks)

Module-4

- 7 a. Explain the principle of pneumatic structures with sketches? Enumerate construction details. (10 Marks)
- b. Explain the principle of tensile roof and their types with the help of construction details and sketches. (10 Marks)

OR

- 8 Provide the construction details of a space frame for an area of size $12\text{m} \times 12\text{m}$, draw the following details:
- a. Roof plan – 1 : 50 (08 Marks)
- b. Section – 1 : 50 (08 Marks)
- c. Node connection details – 1 : 5 (04 Marks)

Module-5

- 9 a. Explain the properties of thermo plastics? Enumerate and brief any five types of thermo plastics. (10 Marks)
- b. What are some unique properties of gypsum? Enumerate and brief five types of construction ad mixtures. (10 Marks)

OR

- 10 Explain the water proofing details with the help of explanation sketches.
- a. Water proofing for terrace garden. (10 Marks)
- b. Water proofing for basement. (10 Marks)
