



USN

--	--	--	--	--	--	--	--	--	--

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 (10 Marks)
- a. Sectional elevation of tubular truss – 1 : 50 (05 Marks)
 - b. Metal sheet roof fixing detail – 1 : 10 (05 Marks)
 - c. Gutter detail – 1 : 5

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] (12 Marks)
- a. Sectional elevation of L-angle truss and lattice girder – 1 : 50 (04 Marks)
 - b. Ridge cap detail – 1 : 5 (04 Marks)
 - c. Gutter detail – 1 : 5

Module-2

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

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. (08 Marks)
- a. Roof plan – 1 : 100 (08 Marks)
 - b. Sectional Elevation of vault roof – 1 : 50 (04 Marks)
 - c. Gutter detail at edge beam – 1 : 10

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 (08 Marks)
- a. Roof plan – 1 : 50 (08 Marks)
 - b. Sectional elevation of inverted umbrella shell roof – 1 : 50 (04 Marks)
 - c. Compression rib detail – 1 : 5.

OR

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

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 12m×12m, draw the following details: (08 Marks)
- a. Roof plan – 1 : 50 (08 Marks)
- b. Section – 1 : 50 (04 Marks)
- c. Node connection details – 1 : 5

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. (10 Marks)
- a. Water proofing for terrace garden. (10 Marks)
- b. Water proofing for basement.
