

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

Fifth Semester B.Arch. Degree Examination, Dec.2019/Jan.2020 Materials and Methods in Building Construction V

Time: 4 hrs.

Max. Marks: 100

- Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Adherence to scale is compulsory.
3. Provide explanatory notes and specifications as necessary.
4. Assume suitable data where missing.*

Module-1

- 1 A tubular steel truss with MS Roof is required for a building of size 12.0m × 28.0m. Draw the following:
- Roof plan to scale 1:100 (05 Marks)
 - Elevation of truss showing details of Roof fixing to scale 1:50. (10 Marks)
 - Detail of fixing at M.S. column to scale 1:10. (05 Marks)

OR

- 2 A building of size 9.0m × 40.0m, North on the longer side, has to be provided with North light Truss, using M.S. Angles and Aluminium sheet Roofing. Draw the following.
- Roof plan to scale 1:100 (05 Marks)
 - Cross sectional view of North light truss showing roof fixing to scale 1:50 (10 Marks)
 - Detail at Ridge to scale 1:5. (05 Marks)

Module-2

- 3 Design and detail a Pre Engineered metal building of size 24.0m × 50.0m × 8.0m high (at gutter), with the following drawings:
- Roof plan to scale 1:200 (05 Marks)
 - Partial section to scale 1:100 (10 Marks)
 - Detail at Gutter to scale 1:5. (05 Marks)

OR

- 4 Enumerate the principles and construction of following RCC Roofs:
- Conoid shell (06 Marks)
 - Geodesic Dome (07 Marks)
 - Vault Roof. (07 Marks)

Module-3

- 5 Explain construction of a Hyperbolic paraboloid Roof for a square base of 10.0m. Give details of reinforcement. (10 Marks)
- Plan to scale 1:100 (10 Marks)
 - Cross section of scale 1:100

OR

- 6 A folded plate Roof is proposed for a building of size 12.0m × 24.0m. Draw the following:
- Roof plan to scale 1:100 (05 Marks)
 - Partial section with reinforcement details to scale 1:50 (10 Marks)
 - Sky light fixing in folded plate. (05 Marks)

Module-4

- 7 A space frame is required for a Hall of size 15.0m × 15.0m. Provide construction details as follows:
- a. Partial plan to scale 1:10 (07 Marks)
 - b. Partial section to scale 1:10 (07 Marks)
 - c. Detail at Node. (06 Marks)

OR

- 8 Enumerate the principle and construction of
- a. Tensile Roof (10 Marks)
 - b. Pneumatic Roof. (10 Marks)

Module-5

- 9 a. Explain the types and uses of plastic. (10 Marks)
- b. What are sealants? Explain various types of sealants. (10 Marks)

OR

- 10 a. How is water proofing done in the following cases: (10 Marks)
- i) Foilets
 - ii) Basement
- b. Explain various construction chemicals used in buildings. (10 Marks)
