



USN

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

15ARC5.2

Fifth Semester B. Arch Degree Examination, June/July 2019

Material 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 An industrial building required to provide a 'L' angle roof truss for a span of size 9.00 mtr 15.00 mtr wide. A truss is resting on ISMC column of size 300mm wide and 600mm depth. Draw the following construction details :
- | | | |
|----|---|------------|
| a. | Cross section of 'L' – angle truss – 1 : 50 scale | (10 Marks) |
| b. | Gutter detail – 1 : 5 scale | (05 Marks) |
| c. | Ridge detail – 1 : 5 scale | (05 Marks) |

OR

- 2 A warehouse Garment factory requires, North light Roofing made up of Tubular Truss for a span of 12.00mtr × 18.00mtr supported on ISMC of 300 dia column provide the following construction detail :
- | | | |
|----|---|------------|
| a. | Roof plan – 1 : 100 | (06 Marks) |
| b. | Section showing North light truss – 1 : 50 | (08 Marks) |
| c. | Gutter detail in between two truss – 1 : 10 | (06 Marks) |

Module-2

- 3 A factory building requires PEB structures for a span of 18.00mtr × 30.00mtr, and has a clear height of 6.00mtr showing roofing and siding with M.S sheets, provide the following details :
- | | | |
|----|---|------------|
| a. | Section showing portal frame – 1 : 100 scale | (10 Marks) |
| b. | Details showing fixing of roofing – 1 : 10 scale | (05 Marks) |
| c. | Detail showing fixing at ridge and Girt – 1 : 10 scale. | (05 Marks) |

OR

- 4 Explain the concept and principle for the following necessary sketch details on :
- | | | |
|----|-----------------|------------|
| a. | Shell structure | (10 Marks) |
| b. | Geodesic Domes | (10 Marks) |

Module-3

- 5 Provide the RCC folded plate roof for a building 18.00mtr × 30.00mtr × 6.00mtr. provide the following details :
- | | | |
|----|---|------------|
| a. | Roof plan – 1 : 100 | (06 Marks) |
| b. | Section with steel reinforcement – 1 : 100 | (10 Marks) |
| c. | Gutter detail in between two roof – 1 : 100 | (04 Marks) |

OR

- 6 Explain the following with sketch and construction detail for
- | | | |
|----|--|------------|
| a. | Geodesic Dome | (10 Marks) |
| b. | Shell roofs – Hyperbolic paraboloid Roofs. | (10 Marks) |

Module-4

- 7 An exhibition art gallery requires a space frame structure for a span of 25.00mtr × 25.00mtr to be designed. Provide the following drawings.
- Roof plan – 1 : 100 (06 Marks)
 - Part enlarged cross section – 1 : 50 (06 Marks)
 - Enumerate any two connector detail used in space frame to required scale. (08 Marks)

OR

- 8 Design a tensile structure for an art exhibition of size 10.00 × 18.00 × 6.00 mtr, draw the following :
- Roof plan – 1 : 00 and section – 1 : 50 (12 Marks)
 - Sketch any one fixing detail (04 Marks)
 - Same the different roof material for tensile structure. (04 Marks)

Module-5

- 9 Show the water proofing detail with the help of sketches with explanation for the following :
- Water proofing for terrace roof (10 Marks)
 - Water proofing for toilet (Sunken slab) (10 Marks)

OR

- 10 a. Describe in brief on plastic as a building material. Explain the types and its properties and uses in the building industry. (10 Marks)
- b. What are solvent and functions and applications for buildings? (10 Marks)

* * * * *