

USN

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

## Second Semester B.Arch. Degree Examination, July/August 2022 Materials and Methods in Building Construction - II

Time: 4 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. List the different types of wooden roof truss with neat sketch of each truss. Also mention the range of span it can be used in the buildings. (08 Marks)
- b. A semi open corridor of size 2.0 × 6.0m has to be designed with wooden lean to roof.
  - i) Draw a cross section to a suitable scale
  - ii) Enlarged detail at the junction where it is resting on the support. (12 Marks)

OR

- 2 a. List out advantages of metal roof truss over timber truss. (06 Marks)
- b. Through neat diagram, show cross-section of a typical metal roof truss labelling the main components. Also highlight the different types of structural steel section used in metal roof truss. (14 Marks)

### Module-2

- 3 a. List the different types of cement and explain any two types in detail. (10 Marks)
- b. List the properties of reinforced steel, also specify the standard dia of steel bars available in market. (10 Marks)

OR

- 4 a. List the different grades of concrete with its mix ratio. (05 Marks)
- b. Write a brief note on retarding admixtures accelerating admixtures highlighting its importance in concrete. (07 Marks)
- c. Write a brief note on field test of cement. (08 Marks)

### Module-3

- 5 a. Write a brief note on Construction and expansion joints. (08 Marks)
- b. Write a note on need/importance of curing the concrete members. (04 Marks)
- c. Explain about various materials used for form work in RCC structures. (08 Marks)

OR

- 6 a. Draw plan and section of a typical isolated footing showing reinforcement detail the a suitable scale. (14 Marks)
- b. Explain raft footing highlighting its application. (06 Marks)

### Module-4

- 7 a. Explain about essential requirement of a comfortable stair. (05 Marks)
- b. An art gallery hall measuring 7000 × 9000 has to be designed with a timber double stringer staircase for accessing its first floor from the ground floor level. Considering the height of ground floor as 3600mm. Draw the following to a suitable scale, location and other relevant details as per your design.
  - i) Key plan of the hall showing staircase (04 Marks)
  - ii) Detail plan of the staircase (05 Marks)
  - iii) Detail part view of the staircase. (06 Marks)

**OR**

- 8 A room measuring  $4500 \times 6000$ mm has to be constructed with a RCC staircase (waist slab straight flight type) to reach its terrace. Considering the height of the room as 2400mm and width of the staircase as 900mm. Draw the following to a suitable scale.
- i) Key plan of room showing the staircase (02 Marks)
  - ii) Detail plan of the staircase (07 Marks)
  - iii) Sectional elevation (07 Marks)
  - iv) Any two relevant details. (04 Marks)

**Module-5**

- 9 a. With the neat sketch, explain any two types of steel fabrication details in steel strain. (10 Marks)
- b. With the neat sketch, explain any two types of composite staircase. (10 Marks)

**OR**

- 10 An Residential apartment has a fire escape path leading to fire escape stair area which is located on rare part of the building. Assume the fire escape stair is fabricated using steel show the following :
- i) A typical stair and one level in plan (08 Marks)
  - ii) Elevation showing support members for stair case (08 Marks)
  - iii) Possible steel sections – Recommendation. (04 Marks)

\* \* \* \* \*