

CBCS SCHEME

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18ARC22

Second Semester B.Arch. Degree Examination, June/July 2023

Materials and Methods in Building Construction – II

Time: 4 hrs.

Max. Marks:100

- Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Draw relevant sketches, wherever necessary.*

Module-1

- 1 With the help of a neat labeled sectional elevation for each differentiate between the king post and the queen post timber trusses. (20 Marks)

OR

- 2 Differentiate between the following, with neat sketches :
i) Timber and steel trusses (08 Marks)
ii) Lena – to and collar roof. (12 Marks)

Module-2

- 3 What are the different properties of steel and how are they impacted? (10 Marks)
Sketch and name the different rolled steel section used in construction? (10 Marks)

OR

- 4 Write short notes on the following :
i) Acid resistant cement
ii) Admixture
iii) Water – cement ratio
iv) White cement. (20 Marks)

Module-3

- 5 Explain the following with respect to reinforced cement concrete :
i) Form work
ii) Curing
iii) Construction joint
iv) Expansion joint. (20 Marks)

OR

- 6 Draw neat labeled sketches and explain the following :
i) Raft foundation
ii) Isolated footing
iii) Grillage foundation
iv) Combined footing. (20 Marks)

Module-4

- 7 A gallery of a Museum, measures 7000mm × 7000mm. Design a RCC folded plate staircase as a straight flight, attached to its wall on one side and connecting to the mezzanine level at 2m height width of the stairs is 1500mm. Flooring is of marble and railing is of stainless steel. Draw the following to the specified scale :
i) Key Plan (Scale 1 : 100) (03 Marks)
ii) Detailed Plan (Scale 1 : 20) (06 Marks)
iii) Detailed Sectional Elevation (Scale 1 : 20) (07 Marks)
iv) Railing Fixing Detail (scale 1 : 5). (04 Marks)

OR

- 8 Draw a typical doglegged timber staircase with timber railing and landing. Width of the staircase is 1200mm ; floor to ceiling height is 3000mm. Label and dimension all its components in the following drawings :
- i) Key Plan (Scale 1 : 50) (03 Marks)
 - ii) Detailed Plan (Scale 1 : 20) (06 Marks)
 - iii) Detailed Sectional Elevation (Scale 1 : 20) (06 Marks)
 - iv) Fixing Detail of Railing to the stair (Scale 1 : 5). (05 Marks)

Module-5

- 9 Sketch and explain the following :
- i) Fire escape staircase
 - ii) Stringer stairs and folded type in steel stairs
 - iii) Composite staircase
 - iv) Stone stairs. (20 Marks)

OR

- 10 Design a spiral staircase to span a height of 3m. Draw the following with labeling and dimensions to the specified scale :
- i) Key Plan (Scale 1 : 50) (03 Marks)
 - ii) Detailed Plan (Scale 1 : 20) (06 Marks)
 - iii) Detailed Elevation (Scale 1 : 20) (06 Marks)
 - iv) Fixing detail of Railing and tread (Scale 1 : 5). (05 Marks)
