

# CBCS SCHEME

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15ARC4.2

## Fourth Semester B.Arch. Degree Examination, June/July 2018 Materials and Methods in Building Construction – IV

Time: 4 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Discuss about various types of reinforced cast-in-situ concrete floor construction. (08 Marks)
- b. Discuss Flat slab/Plate floor with sketches. (12 Marks)

OR

- 2 Discuss about the basic principles and the various methods of construction used for R.C.C moment framed slabs. Draft a plan and section of the slab for a room measuring 3m × 4m. Show the reinforcement details and assume suitable scale wherever necessary. (20 Marks)

### Module-2

- 3 a. Define a waffle slab. List its advantages with the brief explanation of how it is designed, adding appropriate sketches. (15 Marks)
- b. Explain : Can a coffered ceiling be considered as a waffle slab? (05 Marks)

OR

- 4 a. What is meant by R.C.C filler slabs? Discuss about their principles and methods of construction. (08 Marks)
- b. Sketch the R.C.C slabs with following filler materials:
  - (i) Stabilized Mud blocks
  - (ii) Mangalore tiles
  - (iii) Hollow concrete blocks. (12 Marks)

### Module-3

- 5 a. Discuss about the properties of structural steel as a prime building material in detail. (08 Marks)
- b. Sketch the following typical connections of structural steel:
  - (i) Column to Beam
  - (ii) Beam to Beam
  - (iii) Column to Base Plate (12 Marks)

OR

- 6 a. Discuss about the following in detail:
  - (i) Forms of structural steel-used in building construction.
  - (ii) Uses of structural steel (12 Marks)
- b. Discuss about the various advantages and methods of steel column/beam construction in buildings. (08 Marks)

**Module-4**

- 7 Draft the following details of a steel casement windows, 1.5m x 1.2m in size  
 (i) Section AA' (ii) Section BB'

(20 Marks)

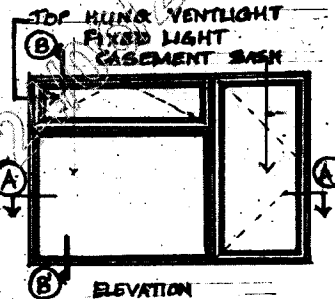


Fig.Q7

OR

- 8 Sketch the following, while explaining their design, how they work and their applications in various types of buildings.  
 (i) Collapsible gate (ii) Rolling shutter.

(20 Marks)

**Module-5**

- 9 a. Discuss about the various applications of aluminium with respect to the building industry. (05 Marks)  
 b. Draw the following details of a two-track sliding window, referring to the given elevation. (Choose appropriate scales)  
 (i) AA' (ii) BB' (iii) Extrusion-details. (15 Marks)

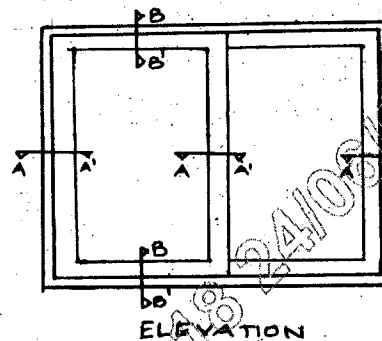


Fig.Q9(b)

OR

- 10 a. Discuss with neat sketches the difference between two track, three track and four track sliding windows. (05 Marks)  
 b. Design and draw the following details of a permanent aluminium framed partition with a door, using materials such as bricks, blocks, etc.  
 (i) Section AA' (ii) Section BB' (iii) Extrusion-details. (15 Marks)

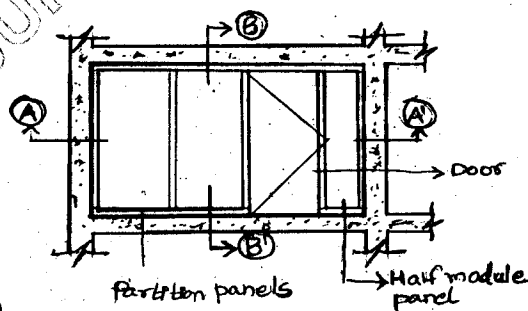


Fig.Q10(b)

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