

Fourth Semester B.Arch. Degree Examination, Dec.2019/Jan.2020 Material 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. For an office floor plate having a column grid arrangement of 12m needs to be designed for a flat slab structural system.
Draw the following:
Plan showing reinforcement details in 1:100 scale [Indicate at least 2 bays in x and y direction]. (10 Marks)
- b. Draft part section showing reinforcement in 1:20 scale. (10 Marks)

OR

- 2 a. Explain the principle of moment framed slab using sketches. (10 Marks)
- b. Draft the reinforcement details for column and beam junction in elevation. Draw the profile of the column in plan and indicate all the reinforcement details. (10 Marks)

Module-2

- 3 a. Explain RCC filler slab construction. State its advantages and disadvantages. (10 Marks)
- b. Draw an enlarged cross section in 1:10 scale indicating slab reinforcement details, ribs and suitable filler materials with adequate labeling and dimensioning (consider the span as 5m with intermediate ribs). (10 Marks)

OR

- 4 a. List down the advantages and disadvantages of waffle slab and partplan. (08 Marks)
- b. Draft a part section of an entrance porch of a college building having a waffle slab arrangement. The section should include all the reinforcement details, placement of pods with necessary labeling and dimensions [1:50 scale]. (12 Marks)

Module-3

- 5 a. Explain the process of hot and cold rolling of steel. (08 Marks)
- b. Draw in isometric, the corner junction of ISMB 200 (FW 100) column with 2 beams of ISMB (FW 75) meeting at right angle with necessary connections (Scale 1:2). (12 Marks)

OR

- 6 a. Explain reinforcement steel and structural steel uses in the construction industry. Draw appropriate sketches. (08 Marks)
- b. Draw an elevation of eave haunch junction. Consider ISMB 200 (FW 100) column and rafter with one tie beam of ISMB 150 (FW 75) with necessary connections (Scale 1:2). (12 Marks)

Module-4

- 7 a. Sketch the details opaque collapsible steel gate and label all the parts. Indicate the specifications of materials and dimensions. (10 Marks)
b. Write notes on steel door for garages and workshops. (10 Marks)

OR

- 8 a. Write short notes on and with sketches :
i) Collapsible steel gate
ii) Rolling shutter. (10 Marks)
b. Draw the elevator for regular collapsible steel gate and label the parts respectively. (10 Marks)

Module-5

- 9 Draw plan, elevation and 2 details for a Aluminum casement window of 800×1200 mm. (20 Marks)

OR

- 10 a. Sketch Aluminum partition for a clinic indicating sections of Aluminum in door and closed partition details. (10 Marks)
b. Explain the importance of Aluminum in building construction. List down the application areas, its properties. (10 Marks)
