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## Second Semester B.Arch. Degree Examination, June/July 2019 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 bungalow has a drawing room 4.0 m × 7.5 of wall thickness 300 mm which is covered with collar beam roof wooden truss of roof covering Mangalore tiles. Draw to a suitable scale following:
- |    |                                 |            |
|----|---------------------------------|------------|
| a. | Key plan                        | (04 Marks) |
| b. | Plan to enlarged scale          | (06 Marks) |
| c. | Sectional elevation             | (06 Marks) |
| d. | Details of half dove tail joint | (04 Marks) |

OR

- 2 a. Distinguish between king post and queen post roof truss. (10 Marks)  
 b. Explain with neat sketches different types of roof covering for a pitched roof which are generally used in India. (10 Marks)

### Module-2

- 3 a. List out various types of cement and state various properties of cement. (10 Marks)  
 b. Explain the preparation, properties and uses of cement concrete. (10 Marks)

OR

- 4 a. State the various uses and properties of steel. (10 Marks)  
 b. Write short notes on following:  
     i) Ingredients of concrete (03 Marks)  
     ii) Admixtures (04 Marks)  
     iii) Water cement ratio (03 Marks)

### Module-3

- 5 a. Explain with neat sketches constriction joint and expansion joint. (10 Marks)  
 b. Explain with neat sketches form work for a RCC square column 230 mm × 230 mm. Sketch the plan, elevation and isometric view of form work. (10 Marks)

OR

- 6 Draw to a suitable scale an RCC column of size 230 mm × 230 mm and RCC footing 1200 mm × 1200 mm × 600 mm and assuming necessary diameter of steel bars and spacing. Draw the following:
- |    |                |            |
|----|----------------|------------|
| a. | Plan           | (07 Marks) |
| b. | Section        | (07 Marks) |
| c. | Isometric view | (06 Marks) |

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-4

- 7 A two stories building is to have dog legged RCC waist slab stair case from ground floor to first floor. The width of each flight is 1.2 m floor to floor height is 3.15 m. Draw the following details for a suitable scale.
- Plan (04 Marks)
  - Sectional elevation (06 Marks)
  - Any two details (04 Marks)
  - Isometric view (06 Marks)

OR

- 8 Explain the following with neat sketch:
- Precast stairs (05 Marks)
  - Timber stairs (05 Marks)
  - Anthropometry of stairs (05 Marks)
  - RCC stringer beam stairs (05 Marks)

Module-5

- 9 Explain with neat sketches:
- Brick and stone stairs (05 Marks)
  - Concrete and wood stairs (05 Marks)
  - Steel and timber stairs (05 Marks)
  - Method of fixing balusters in stone steps (05 Marks)

OR

- 10 A steel fire escape stairs in an apartment block into fitted within a size of 4 m width and 7 m length, outside the building. Assuming the typical floor height to be 3.15 m. Draw to a suitable scales, following:
- Plan (04 Marks)
  - Cross section (04 Marks)
  - Longitudinal section (06 Marks)
  - Two enlarged details (06 Marks)

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