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18ARC22

Second Semester B.Arch. Degree Examination, Dec.2019/Jan.2020 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 terrace party hall measuring 8000×12000 mm needs to be provided with Mangalore tiles – King post roof. Consider the end supports with $1\frac{1}{2}$ thick brick walls. Draw the following to scale specified and label all the parts with dimensions.
- Key plan of the Roof (Scale 1:100) (03 Marks)
 - Detailed plan (Scale 1:20 / 1:30) (06 Marks)
 - Detailed section (scale 1:20 / 1:30) (06 Marks)
 - Any two details to appropriate scale (05 Marks)

OR

- 2** Explain the following with neat sketches
- Different types of steel truss roofs (05 Marks)
 - Collared Roof (05 Marks)
 - Queen Post Roof (05 Marks)
 - Lean to Roof (05 Marks)

Module-2

- 3** Write short notes on :
- Different types of cement and their applicability (05 Marks)
 - Composition of concrete and various admixtures used enhance its workability. (05 Marks)
 - What are the various recommended mixes of concrete used for construction? (05 Marks)
 - What is meant by ductility of steel? Mention the defects in steel with neat sketches. (05 Marks)

OR

- 4** Write short notes on:
- What are the different field tests and lab tests conducted for quality check of cement? (05 Marks)
 - Write briefly about curing and water proofing of concrete. (05 Marks)
 - What are the precautions to be taken while placing of concrete? (05 Marks)
 - Write briefly about different market forms of steel with neat sketches. (05 Marks)

Module-3

- 5** A Rectangular column measuring 600×200 mm has to be provided with an appropriate footing measuring 1500×1300 mm and 1500 mm deep. Draw the following to scale specified and label all the parts with dimensions.
- Detailed Plan (Scale 1:20 / 1:30) (05 Marks)
 - Detailed Section (Scale 1:20 / 1:30) (05 Marks)
 - Detailed of Reinforcement to scale (03 Marks)
 - Isometric view to scale. (07 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.

OR

- 6 Explain the following with neat sketches:
- Grillage foundation (05 Marks)
 - Raft foundation (05 Marks)
 - Types of footings (05 Marks)
 - Construction or Expansion Joints (05 Marks)

Module-4

- 7 A room measuring 6000mm × 6000mm has a RCC - waist slab - dog legged - External staircase to the terrace, made of granite flooring and stainless steel railing. Consider the width of the staircase flight as 1200 mm, Height of the room as 3150 mm. Draw the following to scale specified and label all the parts with dimensions.
- Key plan of the room showing external staircase to terrace (Scale 1:100) (02 Marks)
 - Detailed plan (Scale 1:20 / 1:30) (06 Marks)
 - Detailed Sectional Elevation (Scale 1:20 / 1:30) (06 Marks)
 - Flooring and skirting detail (Scale 1:5 / 1:2) (03 Marks)
 - Railing and Baluster fixing detail (Scale 1:5 / 1:2) (03 Marks)

OR

- 8 Explain the following with neat sketches :
- Different types of staircase with reference to shapes / arrangement of flight. (05 Marks)
 - Folded plate staircase with reinforcement detail (05 Marks)
 - Timber staircase with double stringer beam (05 Marks)
 - Pre-cast RCC staircase. (05 Marks)

Module-5

- 9 A children's library hall measuring 8000 × 6000 mm has a Straight flight – Internal staircase to the first floor Reading room, made of Timber and steel. The width of the staircase is 1500 mm height of the ground floor library hall is 3500 mm. Consider the railing made of stainless. Draw the following to scale specified and label all the parts with dimensions.
- Key plan of the library showing Internal staircase to first floor Reading Room. (Scale 1:100) (02 Marks)
 - Detailed Plan (Scale 1:20 / 1:30) (06 Marks)
 - Detailed Sectional Elevation (Scale 1:20 / 1:30) (06 Marks)
 - Flooring and skirting detail (Scale 1:5 / 1:2) (03 Marks)
 - Railing and Baluster fixing detail (Scale 1:5 / 1:2) (03 Marks)

OR

- 10 Explain the following with neat sketches :
- Fire Escape Staircase (05 Marks)
 - Spiral staircase (05 Marks)
 - Steel and Glass composite staircase (05 Marks)
 - Wood and concrete composite staircase (05 Marks)

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