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15ARC2.2

Second Semester B.Arch. Degree Examination, June/July 2016
Materials & Methods in Building Construction – II

Time: 4 hrs.

Max. Marks:100

**Note: Answer FIVE full questions, selecting
ONE full question from each module.**

Module – 1

- 1 A hall 8m×18m is required to be roofed over with mangalore tiles on king post truss. The trusses are spaced 3 m centre to centre and are supported on $1\frac{1}{2}$ brick thick walls on either side. Draw detailed drawings for the following with suitable scale.
- Key plan showing hall size and positions of trusses and purlins. (04 Marks)
 - Elevation of the truss. (10 Marks)
 - Any two details. (06 Marks)
- 2 Explain with neat sketches:
- Different types of roof coverings used for the pitched roofs. (05 Marks)
 - Steel trusses. (05 Marks)
 - Lean-to-roof. (05 Marks)
 - Isometric view of pitched roof showing hip end, valley, ridge, gable end. (05 Marks)

Module – 2

- 3
- Describe in detail the ingredients of reinforced cement concrete. (10 Marks)
 - Explain in detail the different types of cement. List out the uses. (10 Marks)
- 4 Write short notes on:
- Bulking of sand. (04 Marks)
 - Workability of concrete. (04 Marks)
 - Grades of concrete. (04 Marks)
 - Water cement ratio. (04 Marks)
 - Grades of cement. (04 Marks)

Module – 3

- 5 A column of 230 mm×230 mm has to be provided with RCC isolated footing 1500×1500 mm. Draw the detailed drawings for the suitable scale.
- Plan showing reinforcement details. (06 Marks)
 - Section. (06 Marks)
 - Isometric view. (08 Marks)
- 6 Write short notes on:
- Compaction of concrete. (04 Marks)
 - Curing of concrete. (04 Marks)
 - Eccentric footing. (04 Marks)
 - Grillage foundation. (04 Marks)
 - Mixing of concrete. (04 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 storied building is to have a dog legged RCC waist slab staircase from ground floor to first floor. The width of the stair is 1.2 m and floor to floor height is 3.15 m. Draw following detail for a suitable scale.
- a. Plan. (03 Marks)
 - b. Sectional elevation. (05 Marks)
 - c. Isometric view. (06 Marks)
 - d. Any two detail. (06 Marks)
- 8 Explain with neat sketches:
- a. Timber staircase. (05 Marks)
 - b. RCC stringer beam staircase. (05 Marks)
 - c. Stone stairs. (05 Marks)
 - d. Cantilever staircase. (05 Marks)

Module – 5

- 9 Draw following details of a steel stringer beam staircase of width 1.2 m and floor to floor height is 3.15 m.
- a. Plan. (05 Marks)
 - b. Longitudinal section. (05 Marks)
 - c. Cross section. (05 Marks)
 - d. Two enlarged section. (05 Marks)
- 10 Explain with neat sketches:
- a. Fire escape staircase. (08 Marks)
 - b. Steel spiral staircase. (08 Marks)
 - c. Fixing detail of staircase railing. (04 Marks)
