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C09-C–607

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BOARD DIPLOMA EXAMINATION, (C-09)

MARCH/APRIL—2021

DCE - SIXTH SEMESTER EXAMINATION

STRUCTURAL ENGINEERING DRAWING

Time : 3 hours] [*Total Marks* : 60

PART—A

4×5=20

Instructions : (1) Answer *any* **four** questions.

(2) Each question carries **five** marks.

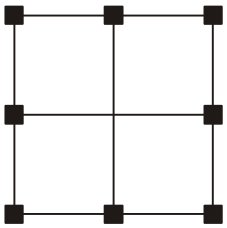
(3) Need not be drawn to scale.

(4) Assume any suitable data if necessary.

1. Re-draw the plan and mark the position of beams with reference to any scheme.

Room	Room
4000 × 3600	2000 × 3600

2. Re-draw the figure and name the columns.



3. Draw the cross-section of a singly reinforced beam for the specifications given below :

Size of the beam = 300 mm × 450 mm

Main reinforcement = 4 no's of 16 mm dia (All straight bars)

Hanger bars = 2 no's of 12 mm dia

Stirrups = 8 mm dia 2-legged stirrups at 200 mm c/c

4. Obtain the reinforcement details for one-way slab shown in the figure :

(a) Diameter of main bar

(b) Draw the shape of main bar

(c) Spacing of distribution bars

(d) Depth of slab

(e) Shorter span length

5. Determine the length of distribution bar for the same above figure i.e., one-way slab.

PART—B

20×2=40

Instructions : (1) Answer **all** questions by following **INTERNAL CHOICE**.

(2) Each question carries **twenty** marks.

(3) Any missing data may be assumed suitably.

6. Draw the reinforcement details of any one structural component in civil engineering structures.

OR

Draw the cross-section of lintel with sunshade to a suitable scale for the following specifications :

Width of wall = 230 mm

Size of lintel = 230 mm × 200 mm

Projection of sunshade from face of the wall = 500 mm

Thickness of sunshade = 100 mm at both fixed and free ends

Reinforcement of lintel :

Main reinforcement = 3 no's of 12 mm dia

Hanger bars = 2 no's of 10 mm dia

Stirrups = 8 mm dia 2-legged at 150 mm c/c

Reinforcement of sunshade :

Main bars at top = 10 mm dia bars at 180 mm c/c

Distribution steel = 8 mm dia at 200 mm c/c.

7. Draw the longitudinal cross section of an isolated square footing to a suitable scale for a column with the following specifications :

Size of the column = 300 × 300 mm

Size of the footing = 1800 × 1800 mm.

Thickness of footing = 400 mm

Base coarse thickness = 150 mm with PCC 1 : 2 : 4

Reinforcement for footing = 12 mm dia at 180 mm c/c in both the directions

The horizontal lap length of the column reinforcing bar is 400 mm each.

Reinforcement for column :

Main bars : 16 mm dia bars, 4 no's

Lateral ties = 8 mm dia ties at 200 mm c/c

All covers = 50 mm

OR

For the same specifications of isolated square footing above draw the cross-section of column to a suitable scale.

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