



c09-c-607

3728

BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV—2014

DCE—SIXTH SEMESTER EXAMINATION

STRUCTURAL ENGINEERING DRAWING

Time : 3 hours]

[Total Marks : 60

PART—A

4×5=20

Instructions : (1) Answer **all** questions.

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

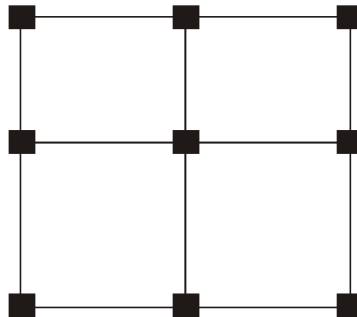
(3) Part—A may be drawn not to scale.

(4) Assume suitable data, if necessary.

(5) For all main reinforcement, use HYSD bars.

1. Draw the line sketch of a two-bedroomed building and show the position of columns in it.

2. Name the columns in the given diagram with 'grid reference scheme' :

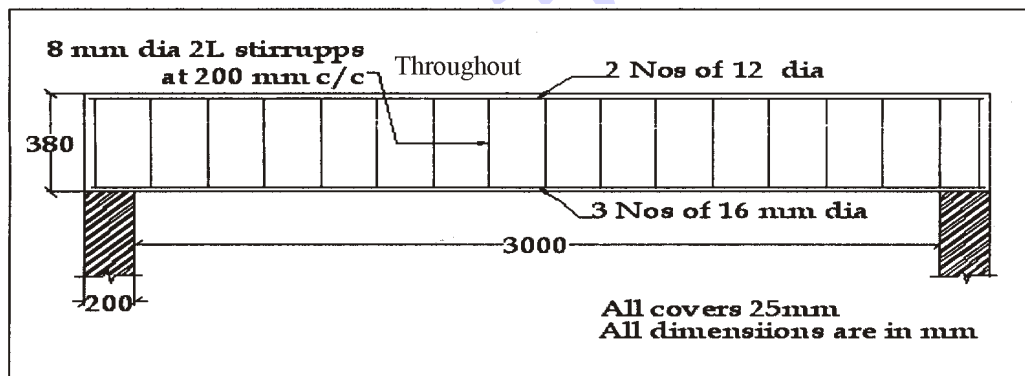


- * 3. Prepare a bar bending schedule and calculate quantity of steel for the one-way slab with the following data :

Size of room : 4500 mm × 2000 mm (inside)
 Wall thickness : 230 mm
 Slab thickness : 125 mm
 Main reinforcement : 10 mm dia bars at 120 mm c/c
 (All the bars are cranked on one side and cranks placed alternately)
 Distribution reinforcement : 6 mm dia bars at 180 mm c/c
 (All covers are of 25 mm)
 Weight of # 10 = 0.62 kg/m, # 6 = 0.22 kg/m

4. Prepare bar bending schedule for the simply supported RCC beam shown below and calculate the quantity of steel :

Width of beam = 230 mm
 Weight of # 16 = 1.58 kg/m; # 12 = 0.89 kg/m; # 8 = 0.39 kg/m



5. Draw the sectional elevation of an isolated column footing showing reinforcement details of column and footing with the following specifications :

Column :

Size of column—230 mm × 230 mm
 Reinforcement—4 nos. of 20 mm dia with lateral ties
 6 mm dia @ 250 mm c/c

Footing :

Size of footing—1000 mm × 1000 mm
 Reinforcement—12 mm dia bars @ 120 mm c/c both ways
 Depth—200 mm uniform

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PART—B

20×2=40

Instructions : (1) Answer **all** questions.

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

(3) Draw all questions to scale.

(4) Assume suitable data, if necessary.

- 6.** A two-way slab whose corners are not held down is laid over a room of size 3.5 m × 5.5 m.

Specifications :

Width of wall—230 mm

Bearing on walls—230 mm

Overall depth of slab—125 mm

Main reinforcement :

Along short span—12 mm dia @ 100 mm c/c (alternate bars are cranked at a distance of 350 mm from face the support)

Along long span—10 mm dia @ 120 mm c/c (alternate bars are cranked at a distance of 550 mm from face of the support)

Draw to a scale of 1 : 50—

(a) bottom plan of reinforcement; 15

(b) cross-section along short span at midspan. 5

- 7.** Draw the longitudinal section of staircase spanning longitudinally with the following specifications : 20

Size of the staircase room—4200 mm × 2200 mm (inside)

Level difference between floors—3000 mm

Width of the stair—1000 mm

Landing length—1000 mm

Tread—270 mm and rise—150 mm

Thickness of waist slab—125 mm

Bearing of wall—230 mm (full)

Size of projection into basement—300 mm × 250 mm

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Reinforcement details :

Main reinforcement—12 mm dia at 140 mm c/c

Distribution steel—10 mm dia at 180 mm c/c

Additional bars—12 mm bars at 280 mm c/c (at junction of
landing slab with waist slab)

Bottom and end clear covers to steel—25 mm

Draw to a scale of 1 : 25.

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