



c09-c-607

3728

BOARD DIPLOMA EXAMINATION, (C-09)

MARCH/APRIL—2017

DCE—SIXTH SEMESTER EXAMINATION

STRUCTURAL ENGINEERING DRAWING

Time : 3 hours]

[Total Marks : 60

PART—A

4×5=20

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

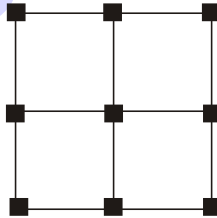
(2) Each question carries **four** marks.

(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. Draw the cross-section parallel to short span of a one way slab with the following specifications :

Size of room—4500 mm × 2000 mm (inside)

Wall thickness—230 mm

Slab thickness—125 mm

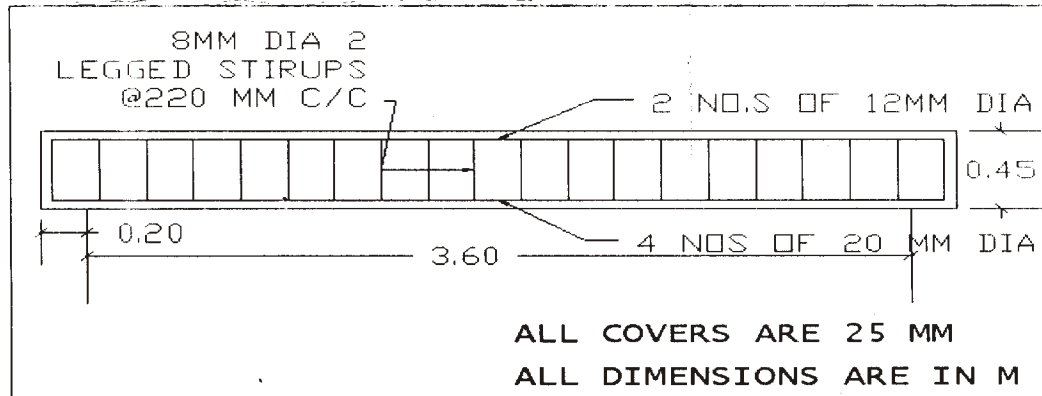
Main reinforcement—10 mm dia bars at 120 mm c/c. All the bars are cranked on one side (at a distance of 250 mm from the face of the support) and cranks placed alternately

Distribution reinforcement—8 mm dia bars at 150 mm c/c.

All covers are of 25 mm.

- * 4. Prepare bar bending schedule for the simply supported RCC beam shown below :

Width of beam = 0.23 m



wtg 12mm 0.89 kg / m

wtg 20mm 2.47 kg / m

wtg 8mm 0.39 kg / m

5. Draw the details of reinforcement at the junction of column and beam of a frame designed as earthquake resistant structure.

PART—B

20×2=40

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

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

(3) Draw all questions to scale.

(4) Any missing data may be assumed suitably

6. An RCC Lintel with sunshade has the following specifications :

Clear span of Lintel—1.50 m

Width of wall—230 mm

Size of Lintel—230 mm × 200 mm

Bearing on walls—150 mm

Projection of sunshade from face of the wall—600 mm

Thickness of sunshade—80 mm at fixed end. 60 mm at free end

Reinforcement of Lintel

Main reinforcement—4 Nos. of 12 mm dia (middle to bars cranked at 45° at 220 mm from face of the support)

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Hanger bars—2 Nos. of 10 mm dia

Stirrups—6 mm dia 2 legged at 180 mm c/c throughout

Reinforcement of sunshade :

Main bars—10 mm dia bars at 150 mm c/c

Distribution steel—8 mm dia @ 180 mm c/c

Draw to a scale of 1 : 10 the

(a) longitudinal section of Lintel;

(b) cross-section of Lintel with sunshade @ mid span. 10+10

7. A two way slab whose corners are held down is laid over a room of size 4.2 m × 6.0 m.

Specifications :

Width of wall—230 mm

Bearing on walls—230 mm

Overall depth of slab—160 mm

Main reinforcement :

Along short span—in middle strip—12 mm dia @ 150 mm c/c in edge strip—12 mm dia at 300 mm c/c

(Alternate bars are cranked at a distance of 420 mm from face of the support)

Along long span—in middle strip—12 mm dia @ 180 mm c/c in edge strip—12 mm dia at 300 mm c/c

(Alternate bars are cranked at a distance of 600 mm from face of the support)

Torsion Reinforcement :

In the form of mesh 850 mm × 850 mm in four layers with 8 mm dia bars 10 Nos. in each layer at all four corners

All covers are of 25 mm

Draw to a scale of 1 : 50 the

(c) bottom plan of reinforcement;

(d) cross-section along short span. 15+5

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