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C16–C–406

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BOARD DIPLOMA EXAMINATION, (C–16)

OCT/NOV—2018

DCE—FOURTH SEMESTER EXAMINATION

CIVIL ENGINEERING DRAWING–II

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

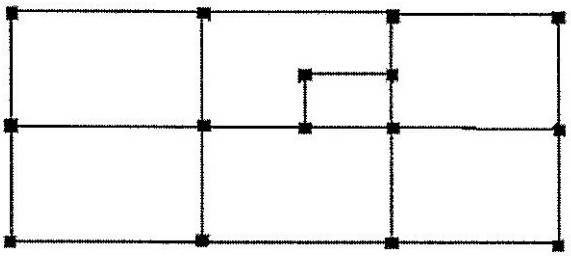
PART—A 4×5=20

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

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

(3) To be drawn not to scale. Assume suitable data, if necessary.

1. Draw the following plan of the frame and show the column and grid reference scheme :

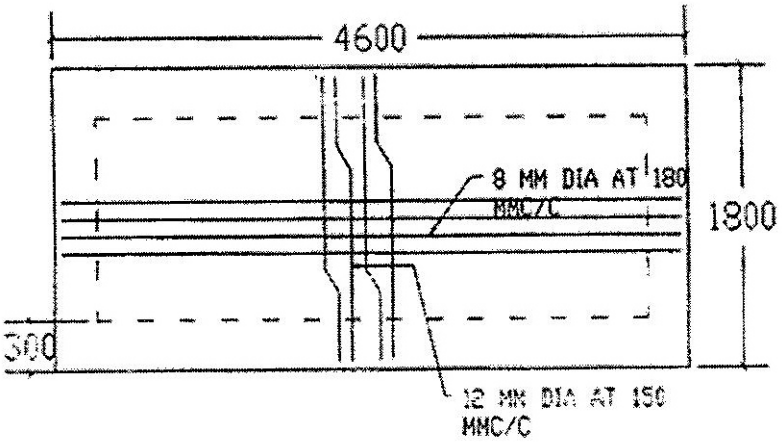


2. State any four guiding principles for position of columns in a structural planning of a building.

3. Prepare a bar bending schedule for a square footing with the following specifications :

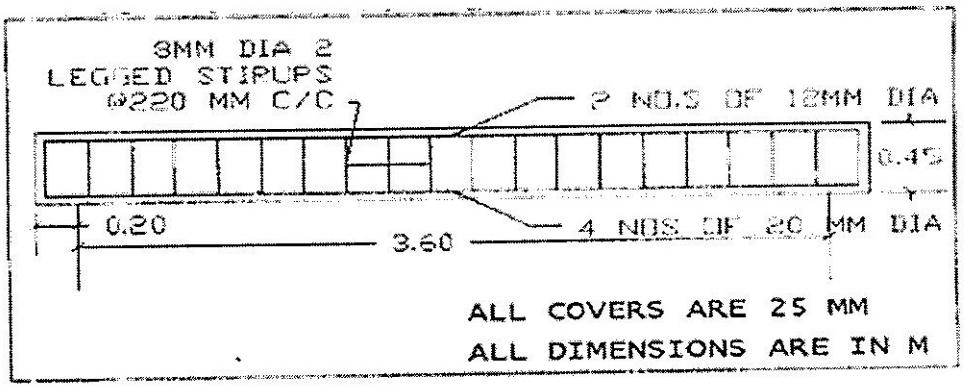
Size of footing	: 1000 mm × 1000 mm
Reinforcement	: 12 mm dia, bars @ 150 mm c/c both ways
Depth	: 350 mm at column face and 150 mm attend
End cover	: 50 mm
Bottom cover	: 75 mm

4. Prepare a bar bending schedule for the one-way slab shown below :



Thickness of slab = 100 mm
All the covers = 20 mm

5. Prepare bar bending schedule for the simply supported RCC beam shown below :



Width of beam = 0.23 m
Wt of 8 mm bar = 0.39 kg/m
Wt of 12 mm bar = 0.89 kg/m
Wt of 20 mm bar = 2.47 kg/m

PART—B 20×2=40

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

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

(3) Assume suitable data, if necessary.

(4) Assume suitable scale.

6. Draw the reinforcement details of a simply supported two-way slab whose corners are held down with the following specifications :

(a) Bottom plan of the reinforcement

(b) Cross-section along the long span at midspan

Specifications :
Size of the room : 4.8 × 6.2 with overall depth of slab 170 mm
Bearing on walls : 300 mm
Reinforcement :
Along shorter span
In the middle strip : 12 mm @ 180 c/c
In the edge strip : 12 mm @ 300 c/c
(Alternate bars are cranked at a distance of 480 mm from the face of the support)
Along longer span :
In the middle strip : 12 mm @ 220 c/c
In the edge : 12 mm @ 300 c/c
(Alternate bars are crancked at a distance of 620 mm from the face of the support)
Torsion reinforcement : In the form of mesh 900 × 900 mm in four layers with 8 mm bars 10 nos in each layer at all the four corners.
Covers : All covers 20 mm.

7. 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 two bars cranked at 45° at 220 mm from the face of the support)

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 @ 150 mm c/c
Distribution steel : 8 mm dia @ 180 mm c/c

Draw the following to a scale of 1 : 10 :
(a) Longitudinal section of Lintel
(b) Cross-section of lintel with sunshade @ midspan.

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