6429

BOARD DIPLOMA EXAMINATION, (C-16)

MAY/JUNE—2023

DCE - FOURTH SEMESTER EXAMINATION

CIVIL ENGINEERING DRAWING—II

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

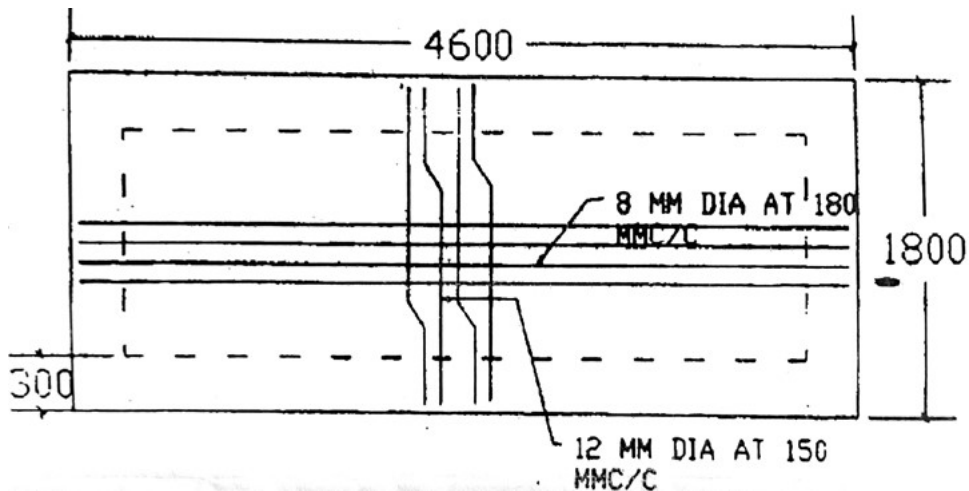**PART—A**   4×5=20

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

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

(3) Part—A may be drawn not to scale.

(4) Assume suitable data, if necessary.

1. Write short note on spanning of slabs.

2. State four important points to be considered in positioning and orientation of column.

3. Draw the longitudinal section for a lintel beam with the following specifications :

Size of the lintel beam	230 × 200 mm
Main bars in tension zone	12 mm dia 2 Nos
Stirrups 6 mm dia. two legged	@150 mm c/c
Anchor bars	8 mm dia 2 Nos at top
Clear span	1150 mm
Bearing on either side	150 mm

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

5. Prepare a bar bending schedule for the simply supported RC beam, with the following data :

Clear span	3200 mm.
Size of the beam	230 mm × 350 mm.
Wall thickness	230 mm.
Main reinforcement	4 nos. of 12 mm dia. (all straight bars).
Hanger bars	2 nos. of 10 mm dia.
Stirrups	6 mm dia. 2 - legged bars at 200 mm c/c.

All covers are of 25 mm. Use HYSD bars.

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 singly reinforced RCC beam with the following specifications :

Specifications :

Clear span of the beam	5000 mm
Bearing on either side	300 mm
Width of the beam	300 mm
Overall depth of the beam	450 mm

Reinforcement :

Bars in tension   4 nos. of 20 mm dia

2 bars are cranked at a distance of 500 mm from the face of the support

Hanger bars   2 nos. of 12 mm dia

Stirrups   Two-legged 8 mm dia at 200 c/c throughout

Assume all covers as 25 mm.

Draw the following views to a scale of 1 : 25 :

(a) Longitudinal section of the beam

(b) Cross-section at the mid span

(c) Cross-section near the support   10+5+5

7. Draw the reinforcement details of a simply supported RCC two-way slab whose corners are free to lift, with the following specifications :

Specifications :

Size of the room	4·0 m × 5·0 m
Edge conditions	Simply supported, corners not held down
Overall depth of slab	140 mm
Bearing on walls	230 mm.

Materials :

Concrete	M 20 grade
Steel	Fe 415

Reinforcement :

Along shorter span : 12 dia at 200 mm c/c (alternate bars are cranked at a distance of 400 mm from the face of the support).

Along longer span : 10 dia at 250 mm c/c (alternate bars are cranked at a distance of 500 mm from the face of the support).

Provide 3#8 hanger bars at each edge to keep top bars in position.

Covers :

Bottom clear cover	=	20 mm
Top clear cover	=	20 mm
End covers	=	50 mm

Draw the following views to a scale of 1 : 25

(a) Bottom plan of the reinforcement   10

(b) Cross-section along the shorter span   10

★ ★ ★