* 6429 *

C16–C–406

6429

BOARD DIPLOMA EXAMINATION, (C–16)

SEPTEMBER/OCTOBER - 2020

DCE—FOURTH SEMESTER EXAMINATION

CIVIL ENGINEERING DRAWING–II

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

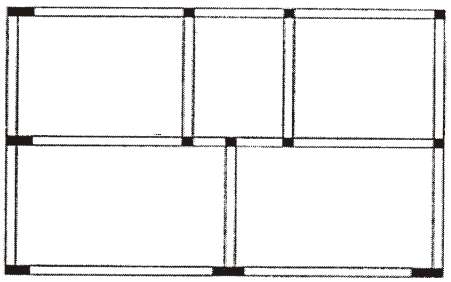
PART—A 4×5=20

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

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

(3) Any missing data may be assumed suitably.

1. Redraw the given structural plan and mark the columns using grid reference scheme :



2. Explain the spanning of slabs with the help of relevant diagrams.

3. Draw the plan showing the reinforcement details of an isolated square footing for a column with the following specifications :

(i) Size of column : 400 mm×400 mm

(ii) Size of footing : 2200 mm×2200 mm

(iii) Thickness of footing : 450 mm uniform

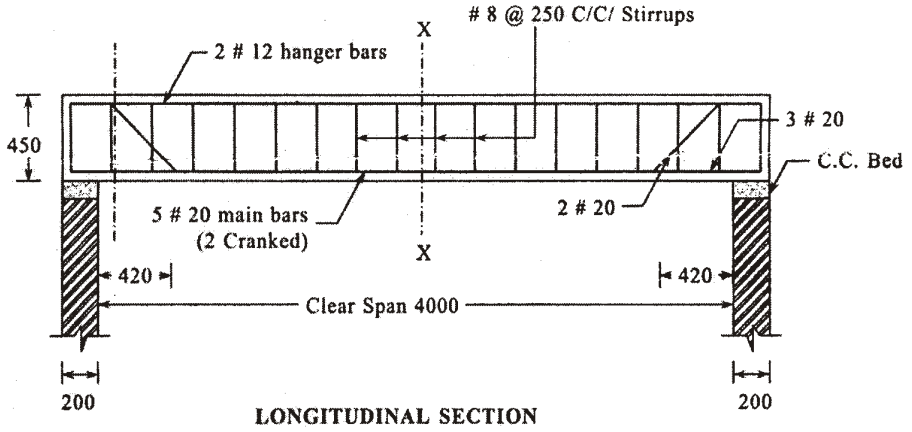
(iv) Thickness of CC bed : 150 mm

Reinforcement :

For footing—12 mm dia bars at 150 mm c/c in both the directions

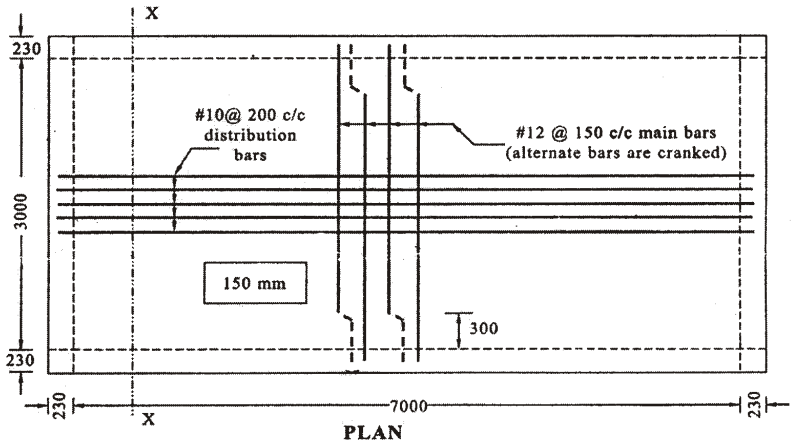
For column—Main bars 16 mm dia 4 numbers, lateral ties—8 mm dia 200 mm c/c

4. Prepare the bar bending schedule and find the quantity of steel required for the main reinforcement for the simply supported beam shown below. Consider all covers as 25 mm :



LONGITUDINAL SECTION

5. Prepare the bar bending schedule and find the total quantity of steel required for the one-way slab shown below. Assume all covers as 20 mm :



PLAN

PART—B

20×2=40

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

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

(3) Any missing data may be assumed suitably.

6. Draw the reinforcement details of a simply supported singly reinforced RCC beam with the following specifications :

(i) 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

(ii) 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 two-way slab whose corners are free to lift with the following specifications to a scale of 1 : 50 :

Specifications :

Size of the room : 4·5 m×5·5 m
Bearing on walls : 300 mm
Thickness of the slab : 140 mm

Reinforcement :

Main steel along shorter span 12 mm at 100 mm c/c and along longer span 10 mm at 120 mm c/c. Alternate bars are cranked in both the directions at 500 mm from the face of support of shorter span and 650 mm from the face of support of longer span. Anchor bars at top are of 8 mm dia 3 nos. on each side of both longer and shorter spans to support the cranked portion.

(i) Bottom plan reinforcement

(ii) Cross-section along short span

(iii) Cross-section along long span 10+5+5

★ ★ ★