6429

C16-C-**406**

# 6429

# BOARD DIPLOMA EXAMINATION, (C-16)

## MARCH / APRIL — 2021

## DCE — FOURTH SEMESTER EXAMINATION

CIVIL ENGINEERING DRAWING - II

*Time* : Three Hours] [*Maximum Marks* : 60

**PART-A** 4×5=20

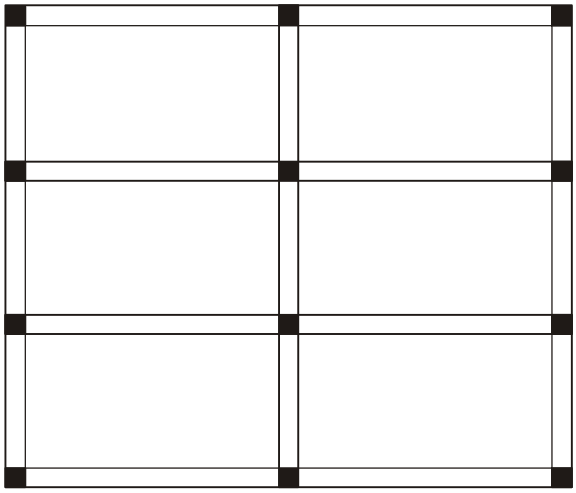
**Instructions :** (*i*) Answer **all** questions.

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

(*iii*) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

(*iv*) Any missing data may be assumed suitably.

**1.** Redraw the figure given below and mark the columns and beams as per Grid Reference Scheme.



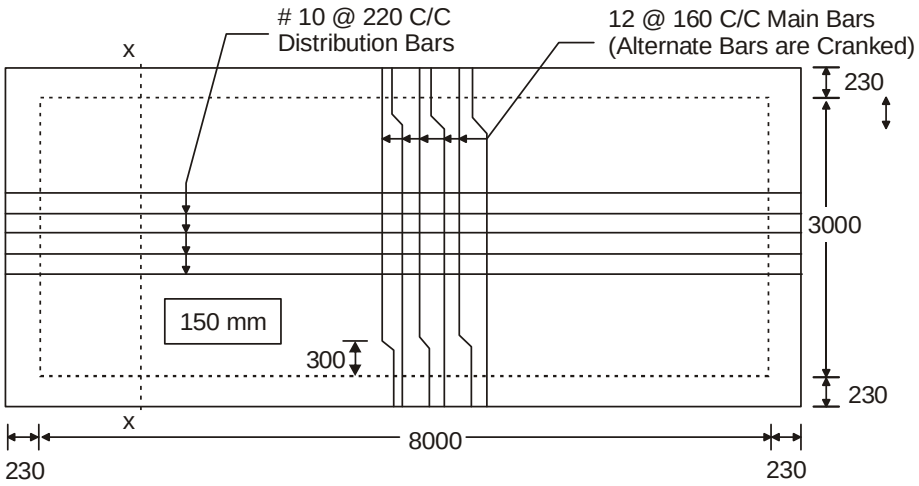
2. State any four guiding principles for positioning of columns in structural planning of buildings.

3. Draw the cross section of the T-Beam at mid span showing reinforcement details with the following specifications :

Clear span: 5000 ; mm Bearing on Walls : 230 mm ; Thickness of the slab : 140 mm ; Overall depth of T-Beam : 450mm ; Width of rib : 230mm

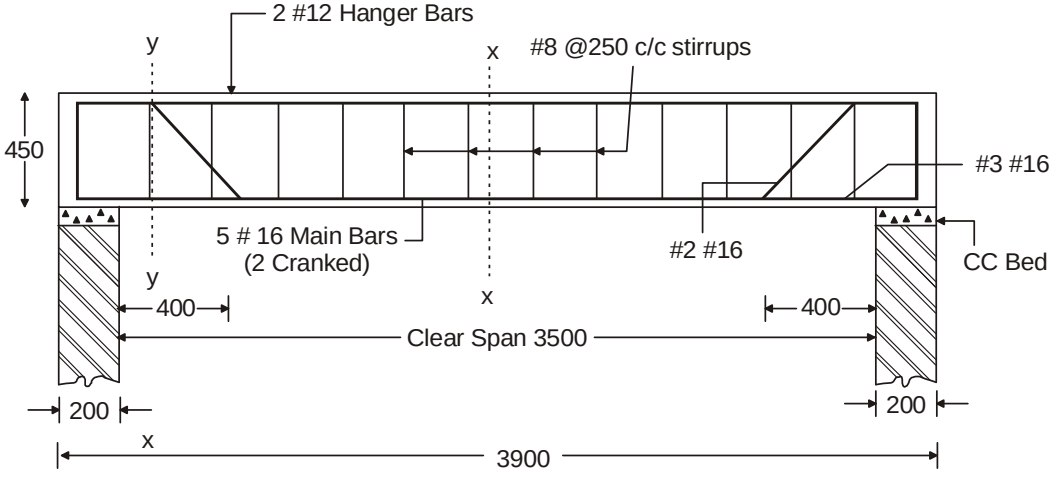
Reinforcement: Main bars: 16#4nos (2 bars cranked @ 700 mm from the face of support) ; Hanger bars: 12#2nos ; stirrups : Two legged 8 mm dia @ 200mm c/c throughout. All covers may be considered as 25 mm.

4. Prepare the Bar bending schedule and find the total quantity of steel required for the one way slab shown below. Top and bottom covers are 20 mm each and side cover is 25 mm.




**PLAN**

5. Prepare the Bar bending schedule and find the quantity of steel required for the main reinforcement for the simply supported beam shown below. Top and bottom covers are 25 mm each and side cover is 40 mm.




**LONGITUDINAL SECTION**

## PART-B 20×2=40

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

(*ii*) Any missing data may be assumed suitably.

**6.** A lintel with sunshade arrangement was provided over an opening of 1500 mm. Bearing on either side of the wall is 230 mm. Width of wall and lintel is 230 mm. Overall depth of lintel is 200 mm. Lintel is provided with 3 bars of 12 dia as main reinforcement, 2 bars of 12 dia as anchor bars and two legged stirrups of 8 dia at 150 mm c/c.

Projection of sunshade is 600 mm with thickness of 100 mm at the fixed end and 60 mm at the free end. Main bars of 10 mm dia at 140 c/c and distribution bars of 8 dia at 120 c/c. Covers for lintel is 25 mm and sunshade is 20 mm.

Draw the cross section and longitudinal section of the lintel with sunshade to a scale of 1:10. 10+10

**7.** A room of clear dimensions 4 m × 5 m is covered with a RCC slab of thickness 140 mm with bearings on either side 230 mm each. The thickness of the wall is 230 mm. Reinforcement along shorter span is 10 mm at 150 mm c/c in the middle strip and the spacing is increased to 300 mm c/c in the edge strip. Reinforcement along longer span is of 10 mm at 200 mm c/c in the middle strip and 300 mm c/c in the edge strip. Alternate bars are cranked at a distance of 0.1 times the clear span in each direction. Anchor bars of 8 mm, 3 nos. are used along each side to hold the cranked bars. All covers may be assumed as 20 mm.

Draw to a scale of 1:50

(*i*) Bottom plan of the reinforcement

(*ii*) Cross section along the short span

(*iii*) Cross section along the long span. (10+5+5)

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