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BOARD DIPLOMA EXAMINATION, (C-16)

MARCH/APRIL-2019

DCE- FOURTH SEMESTER EXAMINATION

CIVIL ENGINEERING DRAWING - II

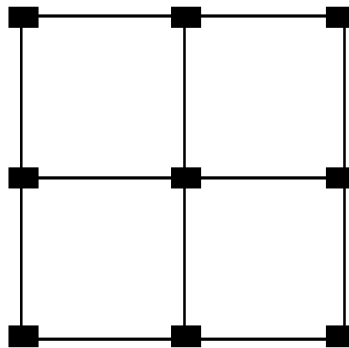Time: 3 Hours   Max. Marks: 60

PART-A

4**x5=20M**

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) Name the columns in the given diagram with 'column reference scheme'.

2) Write any two points where columns and beams are placed in a framed structure with sketch.

3) Draw the cross section of the square column footing with the following specifications:

Size of column	:	230x230mm
Size of footing	:	1200x1200mm
Thickness of C.C Bed	:	200mm
Thickness of footing at free end	:	150mm
Tapered portion height	:	50mm
All covers	:	50mm

Reinforcement: (i) in footings, #12mm @ 150 mm c/c in bothways

(ii) in columns, 4Nos of 20mm dia with lateral ties of 8mm dia at 150mm c/c

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4) Prepare a bar bending schedule for the one-way slab, with the following data:

Size of room	:	4400mm x 2000mm (inside)
Wall thickness	:	250mm
Slab thickness	:	120mm
Main reinforcement	:	10mm dia. bars at 150mm c/c. All the bars are cranked on both sides and cranks placed alternately
Distribution reinforcement	:	8mm dia. bars at 200mm c/c. All covers are of 25mm

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

Clear span - 3200mm

Size of the beam - 230mmx350mm

Wall thickness - 230mm

Main reinforcement - 4 nos.of 12mm dia. (all straight bars)

Hanger bars - 2 nos. of 10mm dia.

Stirrups - 6mm dia. 2 - legged bars at 200 mm c/c

All covers are of 25mm

PART-B

20x2=40M

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

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

3) Draw all questions to scale.

4) Assume suitable data, if necessary.

6) Draw the reinforcement details of a lintel- cum- sunshade with the following specification. (10+5+5)

(i) Lintel

Clear span of lintel=1500mm

Size of Lintel=350x200mm

Bearing in either side=230mm

(ii) Reinforcement

Main reinforcement: 12mm dia 4 Nos in which 2 nos straight and 2 nos are cranked at a distance of 280mm from the face of the support at 45^0

Hanger bars : 2 nos 10mm dia

Stirrups: 6mm dia two legged stirrups at 150mm centre to centre

    (iii) Sunshade

        Projection of the sunshade - 600mm

        Thickness at the fixed end - 100mm

        Thickness at the free end - 60mm

        Reinforcement

        Main bars - # 10, at 150mm c/c

        Distribution bars - # 8, at 150mm c/c

    (ii) Covers

        Bottom clear cover in lintel - 25mm

        Top clear cover in sunshade - 20mm

        All the remaining covers - 25mm

Draw the following views to a scale of 1 : 20

   i) Longitudinal section of lintel

   ii) Cross - section at the mid span of lintel with sunshade

   iii) Cross - section of lintel with sunshade near the support

7)   Draw the longitudinal section and plan of staircase spanning longitudinally with the following specifications :

Size of the staircase room	:	4500 mm x 2000 mm (inside)
Level difference between floors	:	3000 mm
Width of the stair	:	1000 mm
Landing lenght	:	1000 mm
Tread	:	270 mm and Rise : 150 mm
Thickness of waist slab	:	150 mm
Bearing on wall	:	230 mm
Size of projection into basement	:	300 mm x 200 mm

Reinforcement details:

(i) Main reinforcement	:	12 mm dia. at 125 mm c/c
(ii) Distribution steel	:	10 mm dia. at 150 mm c/c
(iii) Additional bars	:	12 mm bars at 125 mm c/c (at junction of landing slab with waist slab)

Bottom and end clear

Covers to steel	:	25 mm

Draw to a scale of 1 : 25   :

(a) Longitudinal section for one flight.   15M

(b) Plan of the staircase room   5M