6429

BOARD DIPLOMA EXAMINATION, (C-16)

JUNE-2019

DCE- FOURTH SEMESTER EXAMINATION

CIVIL ENGINEERING DRAWING - II

Time: 3Hrs Max. Marks: 60

PART-A

4x5=20M

Instructions: 1) Answer **all** questions. Each question carries **four** marks 2) Part-A may be drawn not to scale.
3) Assume suitable data, if necessary.

1) Mark the position of columns in the given diagram and name them as per 'Grid Reference Scheme':

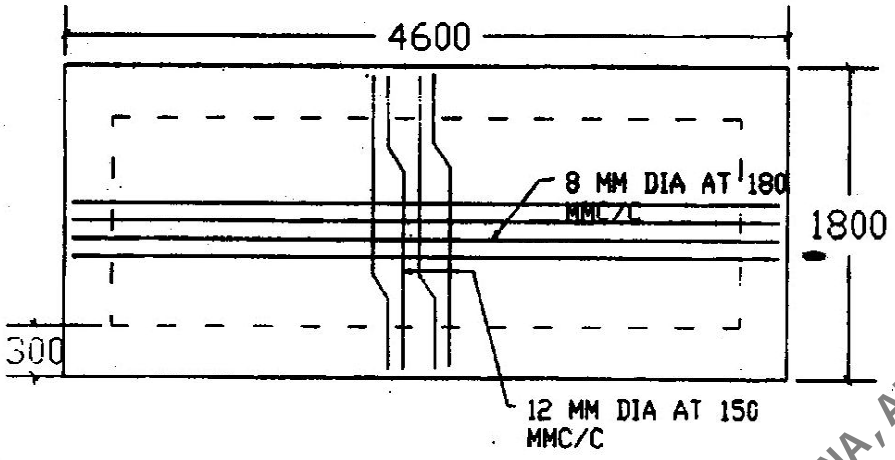
Room	Room
4000 x 3600	2000 x 3600

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

3) Draw the longitudinal section of a singly reinforced rectangular beam for the reinforcement details given below :

Clear span	:	3000mm
Size of the beam	:	230mm x 450mm
Bearing on walls	:	200mm
Main reinforcement	:	3 nos. of 12mm dia. (all straight bars)
Hanger Bars	:	8mm dia. 2-legged bars at 200mm c/c.

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



5) Prepare a bar bending schedule for a square footing with following specifications.

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

PART-B

20x2=40M

Instructions: 1) Answer **all** questions. Each question carries **twenty** marks.
2) Assume suitable data, if necessary.

6) A two-way slab, whose corners are not held down, is laid over a room of size 4.5m x 5.5m :

Specifications :

Width of wall - 230mm

Bearing on walls - 230mm

Overall depth of slab - 140mm

Covers :

Bottom clear cover : 15mm

Top clear cover : 15mm

Side covers : 20mm

Main reinforcement:

Along short span - 10mm dia. @ 100mm c/c (alternate bars are cranked at a distance of 900mm from face of the support)

Along long span-10mm dia. @ 150mm c/c (alternate bars are cranked at a distance of 1100mm from face of the support)

Provide 3-8mm ϕ hanger bars on each side to keep the cranked bars in position.

Draw to a scale of 1:50:

a) Bottom plan reinforcement. 15M

b) Cross section along long span. 5M

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

Size of the staircase room - 4700mm x 2000mm (inside)

Level difference between floors - 3000mm

Width of the stair - 1000mm

Landing length - 1000mm

Tread-270mm and Rise - 150mm

Thickness of waist slab - 150mm

Bearing on wall - 230mm (full)

Size of projection into basement - 300mm x 300mm

Reinforcement details :

(i) Main reinforcement - 12mm dia at 120mm c/c

(ii) Distribution steel - 10mm dia at 150mm c/c

(iii) Additional bars - 12 mm bars at 120mm c/c

(at junction of landing slab with waist slab)

Bottom and end clear covers to steel - 25mm.

Draw the following to a scale of 1:25

(a) Longitudinal section of one flight. 15M

(b) Plan of the staircase room. 5M

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