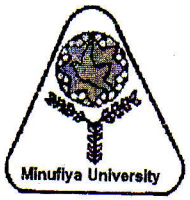
Menoufeya University
College of Engineering
Civil Engineering Dept.
Total Marks 120



R. C. Concrete
2nd Year Civil
Time : 4 hrs
May, 25, 2015

N. B. Any needed data not given is to be reasonably assumed

Question (1) (20)

a- Design the beam shown in figure to resist the concentrated load; in addition to its own weight; without any cracks, b=30.0 cm. f_{cu}=25.0 N/mm^2, fy = 360 N/mm^2.

b- The beam shown has a constant cross section as given, Calculate the minimum and maximum safe value for the load P. f_{cu}=30.0 N/mm^2, fy = 400 N/mm^2.

Question (2) (40)

For the reinforced concrete floor shown in figure: Live load=2.5 kN/m^2, floor covering=1.5 kN/m^2, f_{cu}=25 N/mm^2, fy = 360 N/mm^2,

a- Design the slabs S1 and S2 as solid slabs.

b-Design the slab S3 as two-way hollow block slab.

c- Design the continuous beam B1.

d- Design the girder B2.

Question (3) (20)

a-Design a spiral hexagonal R.C. column to resist an axial ultimate load of 1800 kN, f_{cu}=25 N/mm^2, fy = 360 N/mm^2, fy (spiral) = 240 N/mm^2.

b-The reinforced concrete column shown is subjected to an ultimate bending moment of 380.0 kN.m , calculate the minimum and maximum axial load that the column can resist safely. f_{cu}=25 N/mm^2, fy = 360 N/mm^2.

Question (4) (20)

It is required to design the isolated R.C. footing shown in figure, It is subjected to an eccentric working load of 1900.0 kN. The soil bearing capacity is 150.0 kN/m2, fcu = 25.0 N/mm2, fy = 360 N/mm2. Draw all necessary details.

Question (5) (20%)

Draw the statical system for the floor shown in figure, Showing : Slabs, Beams, and columns. Columns are allowed on axes only.

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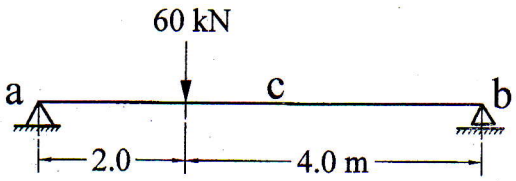
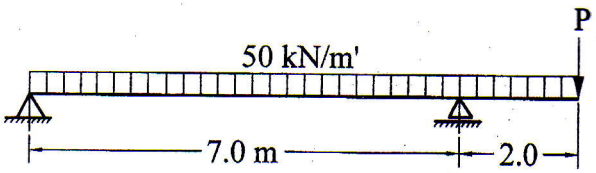
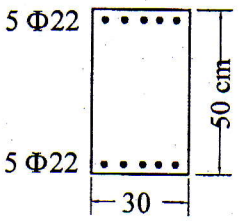
Design = calculation + drawing of details.

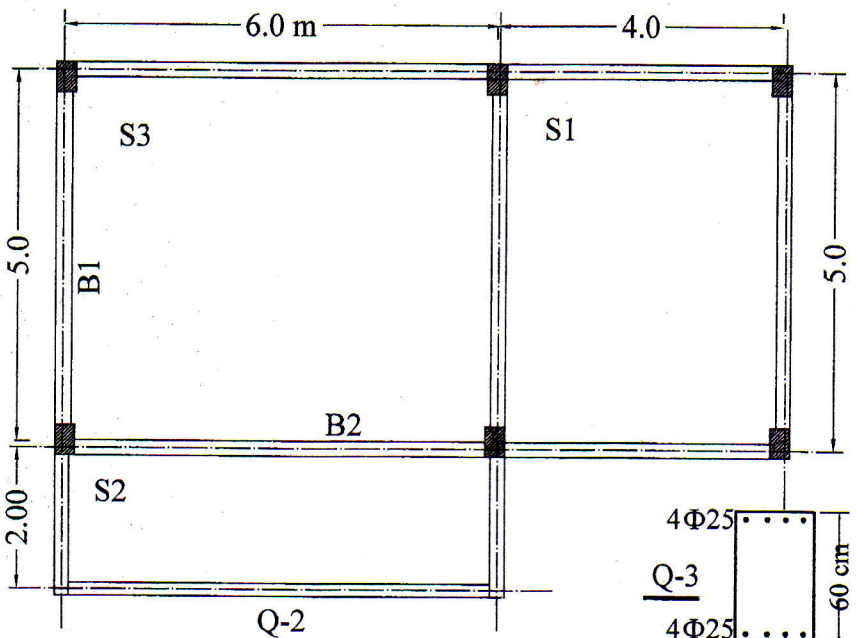


Q-1-a



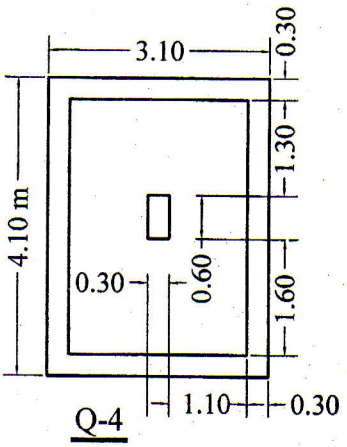
Q-1-b



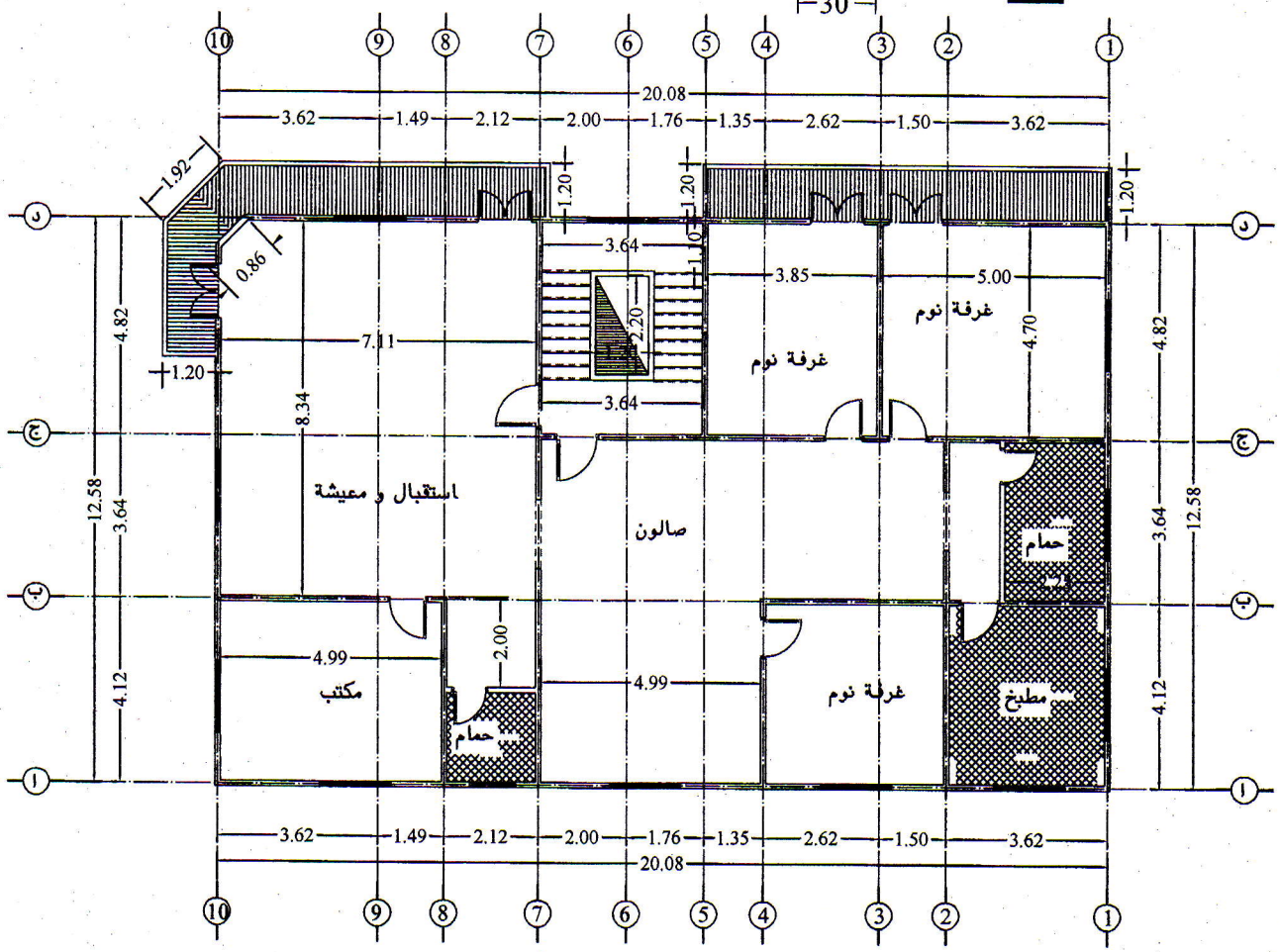


Q-2

Q-3



Q-4



Q-5 مسقط افقى للدور المتكرر