



First Semester Examination, 2013-2014  
Date of Exam: 6 / 1 / 2014

Answer all the following questions:

(Permitted to use concrete tables and charts)

**Question 1:** (55 marks)

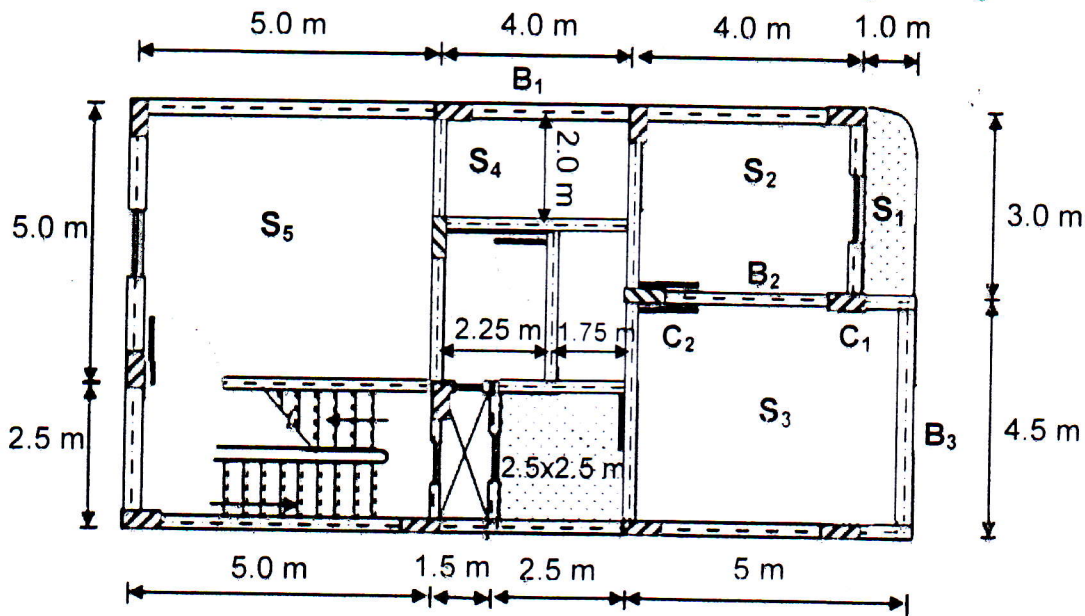
For the given 5-floor building:

$f_{cu} = 300 \text{ kg/cm}^2$  & Available Steel grades 24/35 & 36/52  
Fl. cover =  $150 \text{ kg/m}^2$  & Live load =  $300 \text{ kg/m}^2$   
Soil bearing capacity  $\sigma_{soil} = 2.0 \text{ kg/cm}^2$

It's required to make complete design\* for the given members:

1. Cantilever Slab  $S_1$  and slab  $S_2$  as solid slabs. .... (25 marks)
2. Beams  $B_1, B_2, B_3$  then, check their shear strength. .... (30 marks)

\*Complete Design = design & drawing



**Question 2:** (20 marks)

For the short braced axially loaded column  $C_1$  (at the previous given plan) it is required to:

1. Calculate the loads for  $C_1$  considering 2-floor building.
2. Make a complete design\* for  $C_1$  considering its ultimate load  $P_u = 150 \text{ t}$ .

**Question 3:** (15 marks)

Make a complete design\* for the isolated footing of column  $C_2$  (at the previous given plan) if you know that:  $P_u = 170 \text{ t}$ , Col. Dim.  $25 \times 60 \text{ cm}$  and Steel grade 36/52.

With my best wishes.

Dr. ALaa A. Bashandy

This exam measures the following ILOs

Question Number	Q.1/1	Q.1/2	Q.2	Q.3	Q.1/1	Q.1/2	Q.2	Q.3	Q.1/1	Q.1/2	Q.2	Q.3
Skills	a-1, a-4 a-5	a-4 a-6, a-1	a-4, a-7 a-1	a-4, a-8 a-1	b-1, b-2	b1, b-2	b-3	b-3	c-3, c-4	c-3, c-4	c-2, c-3 c-4	c-2, c-3 c-4
	Knowledge & Understanding Skills				Intellectual Skills				Professional Skills			