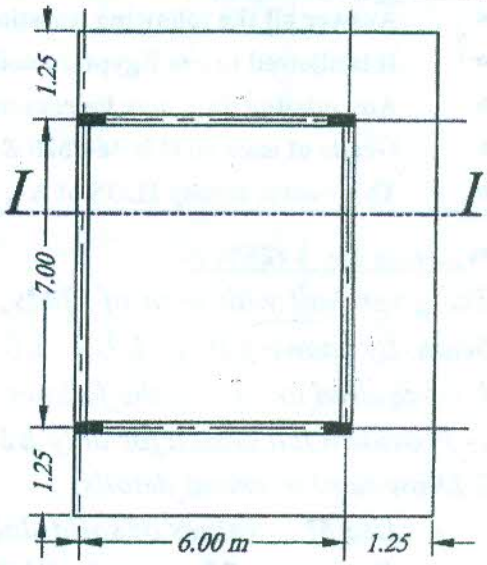
Kafr El-Sheikh University
Faculty of Engineering
Civil Engineering Department
Third Year Civil, 1st term

Reinforced Concrete 2
Final Exam
Date: Dec, 31th , 2017
Time: 4.00 Hours

Full mark: 85

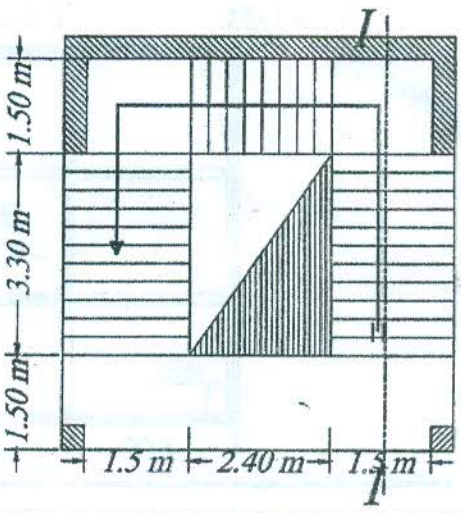
Question No. 3 (20%):-

The given slab is supposed to be designed as a hollow block slab.
If you know that F.C = 1.50 kN/m², L.L = 3.00kN/m²:-
1-Make a full design of hollow block slab.
*2- With a **suitable scale. Draw reinforcement details (Plan & Cross section I-I).***



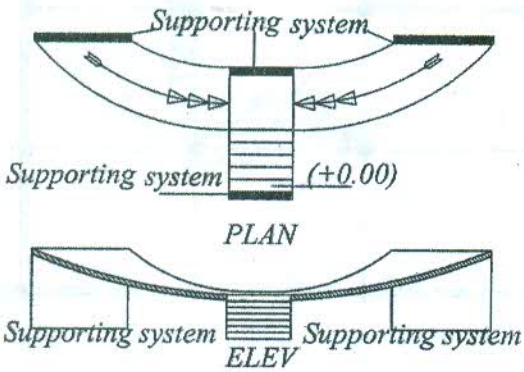
Question No. 4 (20%):-

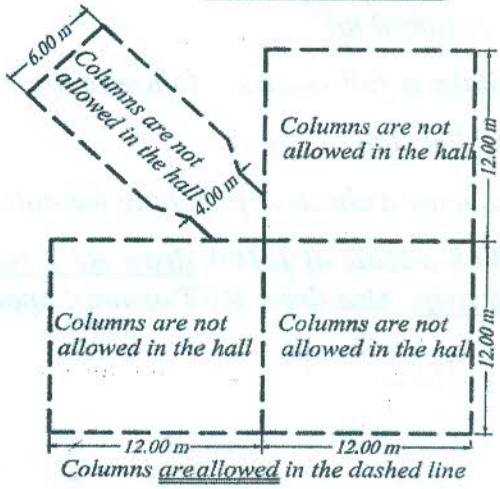
The given stair is supposed to be designed to resist L.L = 3.0 kN/m², F.C= 1.50 kN/m² it is required to execute the following:-
*1- **Provide** the **best statical** system.*
2- Make a full design for the given stairs.
*3- With a **suitable scale**, **draw RFT for only cross section of strip I-I.***



Question No. 5 (15%):-

*a-**Without calculations provide** the main steps of shear-torsion design according to ECP*
*b-Suggest the **best statical system** for the followings (WITH RFT SKETCH IN YOUR **ANSWER PAPER**).*





مع خالص دعواتي القلبية بالاستفادة الكاملة بالمنهج المعطي
د.م/ أحمد عبدالله أحمد حموده واللجنه

r El-Sheikh University
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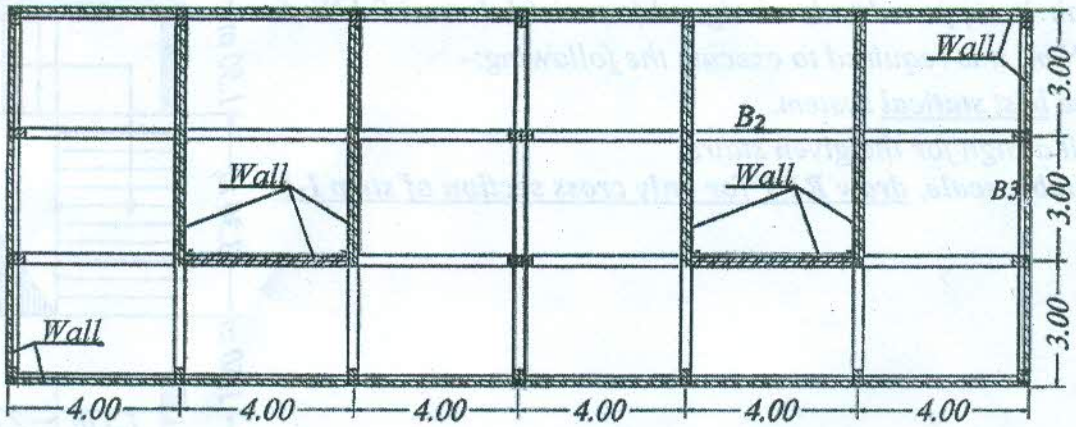
- Answer all the following question.
- It is allowed to use Egyptian code-design aids. يسمح باستخدام جداول و مساعدات التصميم
- Any missing date may be reasonably assumed.
- Grade of used steel is 360/520 & 240/350 for steel and stirrups. The used f_{cu} is 35 N/mm^2
- This course satisfy ILOS of A4, A5 and A6- B4, B5 and B11- C3, C4, C6 and C7- D1, D2, D6 and D7

Question No. 1 (25%):-

*The given hall with area of (24*9) m^2 shown below is supposed to be designed as **continuous paneled beam**. By knowing that: L.L = 3.0 kN/m^2 , F.C= 2.5 kN/m^2 , **weight of wall** γ_{wall} = 12 kN/m^3,*
It is required to answer the follows :-
*1- Provide a full design for only **B2** and marginal beam **B3**. **(NOTE: design of solid slabs are not Req.)***
2-Draw reinforcement details;

- ***Use Min. values of solid slab then draw <u>RFT FOR ONLY HORIZONTAL STRIP</u> scale of 1:100.***
- ***For beam B2,** provide **<u>ONLY HALF longitudinal section</u>** with scale of **1:100** and **cross section** with **1:25**.*



Question No. 2 (25%):-

The shown hall is supposed to be designed with the given data: F.C = 1.5 kN/m^2 L.L = 2.0 kN/m^2 Floor height = 3.00 m.
It is required to:
1- Make a full analysis followed by complete design for the given flat slab.
*2- Execute a check of punching for column **C**.*
*3- With a **scale of 1:100, <u>draw RFT for only one column and field strip</u>. Also draw RFT around opening.***