



مادة الخرسانة المسلحة

امتحان التيرم

Final-Term Exam

٢٠١٧/٠٦/٠٨

الفرقة الثانية- قسم مساحة

٢٠١٧-٢٠١٦

دكتور المادة

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Total Mark: 60 Marks

Closed Book Exam

The Exam consists of one page

- *Systematic arrangement of calculations and clear neat sketches are essential.
- *Complete detail drawings of concrete dimensions and steel reinforcement are essential.
- *(Any missing data should be reasonably assumed according to Egyptian Code of Practice.
- * For all of the following problems: $f_{cu} = 25 \text{ MPa}$, $f_y = 360 \text{ MPa}$.

QUESTION 1: (60 Marks)

[ILO's: a3, a4, a5, a6, b2, b4, b6]

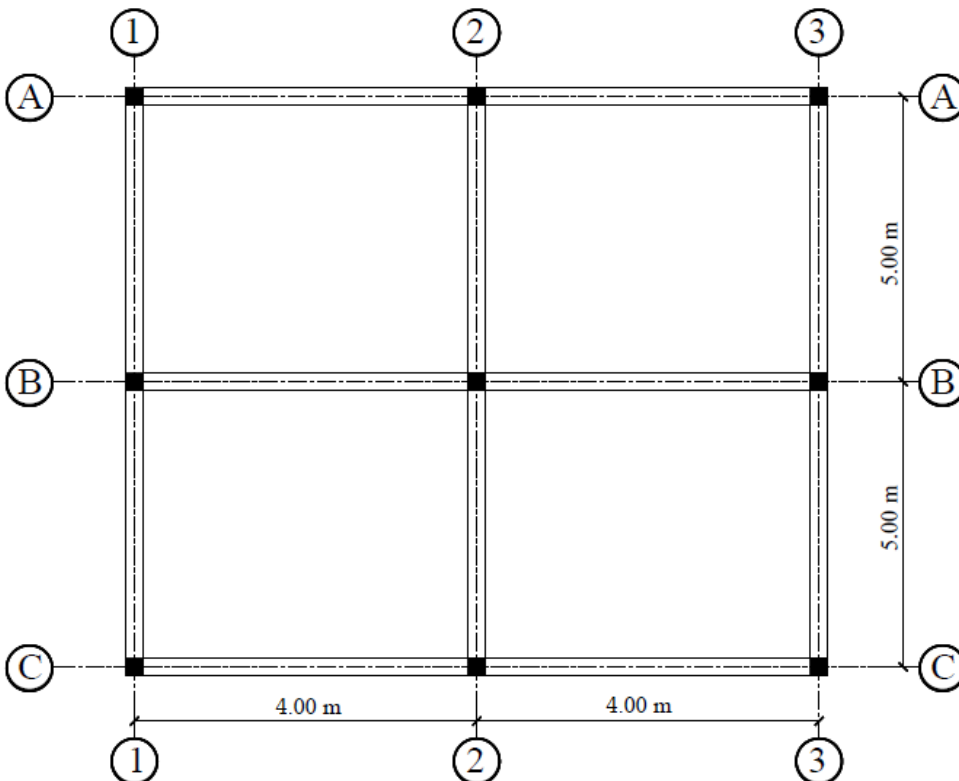
The structural system of the building shown in Figure below is subjected to:

- * Story height = 3.0 m
- * Live load on the slabs = 2.0 KN/m^2
- * Flooring Cover = 1.5 KN/m^2
- * γ_{wall} = 18 KN/m^3
- * Thickness of walls = 250 mm (assume walls on all beams)
- * All beams section (b x t) = 250 mm x 600 mm

It is required to:

- a) Design all slabs for thickness and steel reinforcement. **(20 Marks)**
- b) Draw to a reasonable scale a plan showing reinforcement details and thickness of slabs. **(20 Marks)**
- c) Calculate the load distribution and draw **B.M.D** & **S.F.D** for beams on axis (B-B) & (3-3). **(20 Marks)**

$$\mu = \frac{0.67 * f_{cu}}{\gamma_c} * \frac{\gamma_s}{f_y} * \left(1 - \sqrt{1 - \frac{(3 * R_u * \gamma_c)}{f_{cu}}} \right)$$



Best Wishes
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