Ministry of Higher Education
Giza Higher Institute of Engineering & Technology
Civil Engineering Department
Course Name: **Theory of Structures (1)B**
Course Code : **CIV 121** Date : **30 / 3 / 2019**

Academic Year : **2018/2019**
Semester : **Second**
Level : **1st Civil**
Time : 1 **Hour**
Examiner**:** ***Dr. M. Abdel-Kader***

Mid-Term Exam

Total Marks**: 30** No. of Questions**:2** (Attempt all questions)

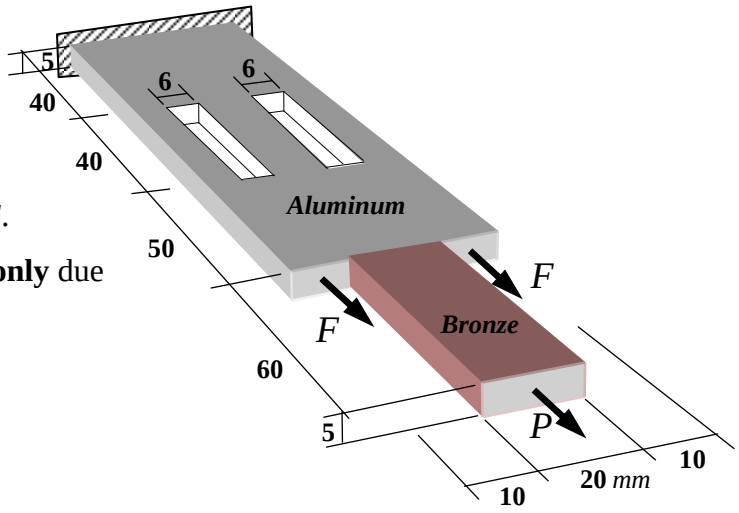
Student Name: Code:

Question (1): (15 Marks)

A bar of variable cross-section is subjected to axial forces as shown**.**

(a) Determine the maximum safe values of ***P*** and ***F***.

(b) Determine the deformation of the **Bronze** part **only** due to the force P_{Safe} calculated in (a).



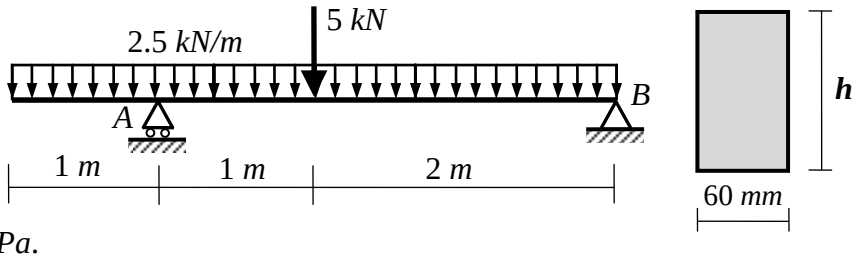
Given Data:
Allowable stress for bronze = 100 *MPa*
Allowable stress for aluminum = 90 *MPa*
E =2.0 *GPa*

Solution:

Please turn over

Question (2): (15 Marks)

Determine the minimum height ***h*** of the cross section of the beam loaded as shown.



The maximum flexural stress, $f_{b\,max} = 30\ MPa$.

Note: *S.F.D* and *B.M.D* are required.

Solution:

With best wishes

Dr. M. Abdel-Kader