الاسم: رقم الكود:

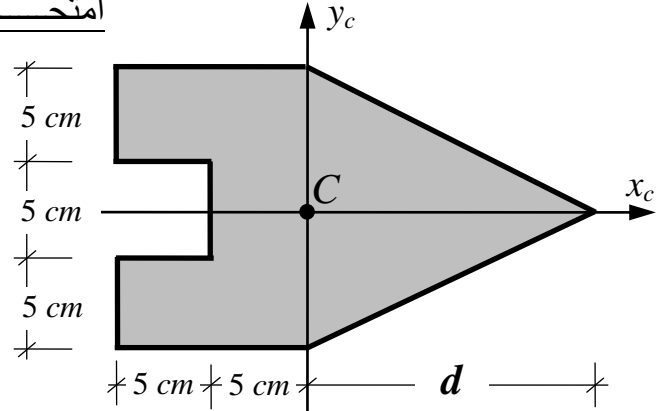امتحـــــــان منتصف الترم

- The Exam consists of **2** questions in **2** pages.

Question (1): (10 Marks)

For the shown area where the centroid is given as shown, determine the distance *d*.

Solution of Question (1)

Question (2): (10 Marks)

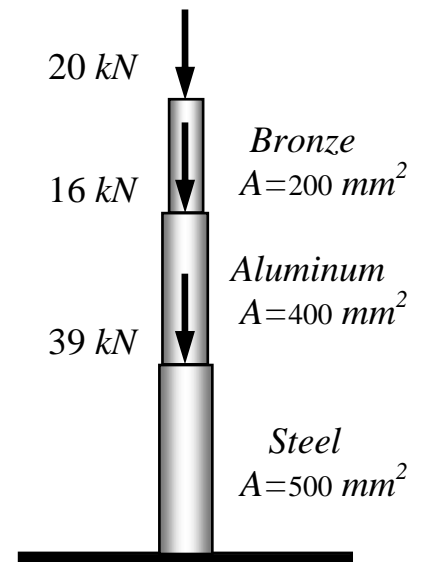A column of variable cross-section is subjected to axial loads as shown.

Check if the column is safe or not.

Given Data:

Allowable stress for bronze = 100 MPa

Allowable stress for aluminum = 90 MPa

Allowable stress for steel = 140 MPa

20 kN

16 kN

39 kN

Bronze
$A=200\ mm^2$

Aluminum
$A=400\ mm^2$

Steel
$A=500\ mm^2$

Solution of Question (2)

With my best wishes

Dr. M. Abdel-Kader