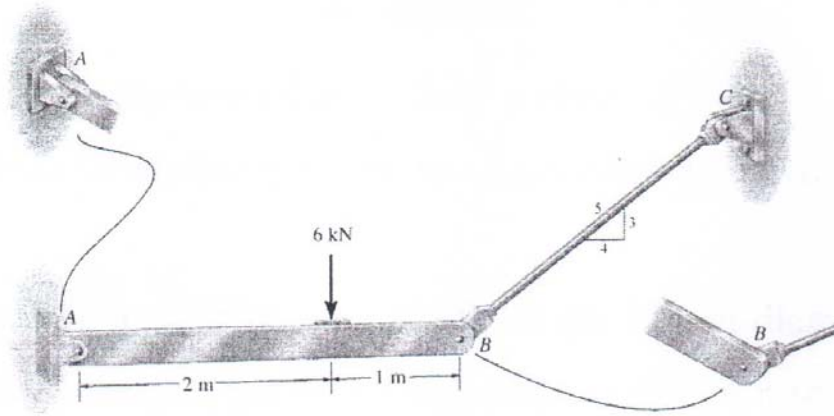| Alexandria Higher Institute of Engineering & Technology (AIET)	
Industrial Department	First Year
ME142 Design of Machine elements	Midterm, Mars, 23, 2014
Examiners: Dr. Rola Afify and committee	Time: 1.5 hour

Answer the following questions:

Question one (10 marks)

a) Define: Ductility - Machinability -Resilience - Hardness.

b) Two members, shown in figure, are pinned together at B. If pins have an allowable shear stress of τ_{all} = 90 MPa, and allowble tensile stress of rod CB is $(\sigma_t)_{all}$ = 115 MPa. Determine to nearest mm the smallest diameter of pins, A, B, C and the diameter of rod CB necessary to support the load.

Question two (10 marks)

a) What are the general procedure in machine design?

b) Draw, using neat sketches, the following:

    a. Elevation and Plan of a cap screw with Hex. socket head.

    b. Elevation and Plan of a cap screw with Square head.

    c. Elevation of a set screw with Headless head with Full dog point.

Good Luck 1/1

Dr. Rola Afify