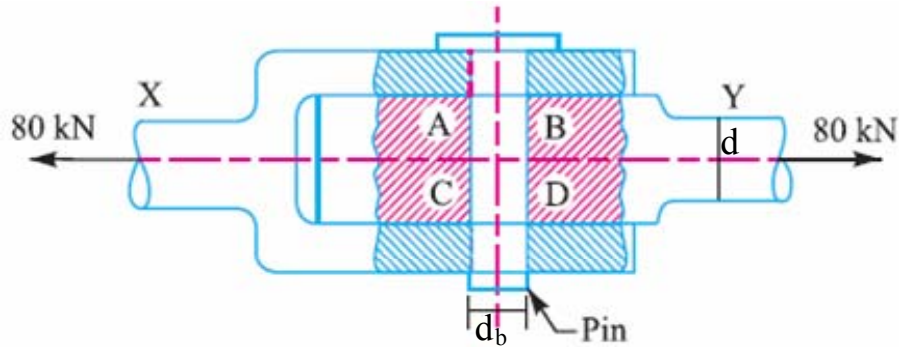
	Alexandria Higher Institute of Engineering & Technology (AIET)		
	Industrial Department		First Year
	ME142	Design of Machine elements	Midterm, April, 28, 2014
	Examiners:	Dr. Rola Afify and committee	Time: 1.5 hour

**Answer the following questions:**

**Question one (10 marks)**

- a) Define: Machine Design - Malleability - Creep - Fatigue.
- b) A pull of 80kN is transmitted from a bar X to the bar Y through a pin as shown in figure. If the maximum permissible tensile stress in the bars is  $100\text{N/mm}^2$  and the permissible shear stress in the pin is  $80\text{N/mm}^2$ , find the diameter of bars and of the pin.



**Question two (10 marks)**

- a) Name the types of simple stresses each one with its equation.
- b) Draw, using neat sketches, the following:
  - a. Elevation and Plan of a cap screw with Filister head.
  - b. Elevation and Plan of a cap screw with Flat head.
  - c. Elevation of a set screw with Headless head and Cup point.