



College of Engineering & Technology

Department: Mechanical Engineering
Lecturer: Dr. Rola Afify
Course Code: ME276

Marks: 20
Time: 8.30 - 10.00
Date: 10/12/2014

Name:

Reg. No.:

Answer the following questions:

Question one (10 marks)

The 20-mm-diameter solid shaft shown in Fig.1 is subjected to the torques shown. Determine the angle of twist of the end B , maximum shear stress in the shaft and draw the torque diagram. Take the modulus of Rigidity 80 GPa for the shaft material.

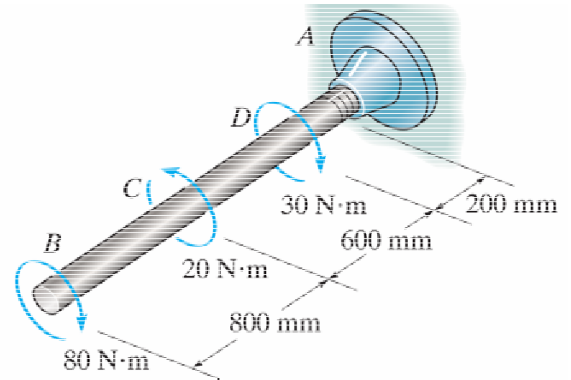


Fig.1

Question two (10 marks)

The solid rod shown in Fig. 2 has a diameter of 2 cm. If it is subjected to the force of 500 N, determine the state of stress and the principal stresses at point A.

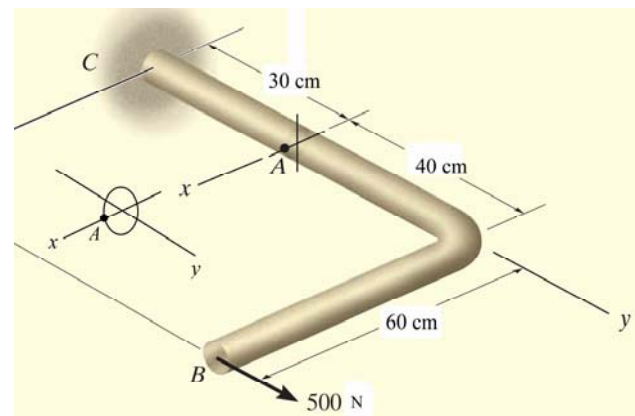


Fig.2