



## College of Engineering & Technology

Department: Mechanical Engineering

Marks: 15

Lecturer: Dr. Rola Afify

Time: 2:00 – 2:30

Course Code: ME276

Date: 5/11/2014

Name:

R.N.:

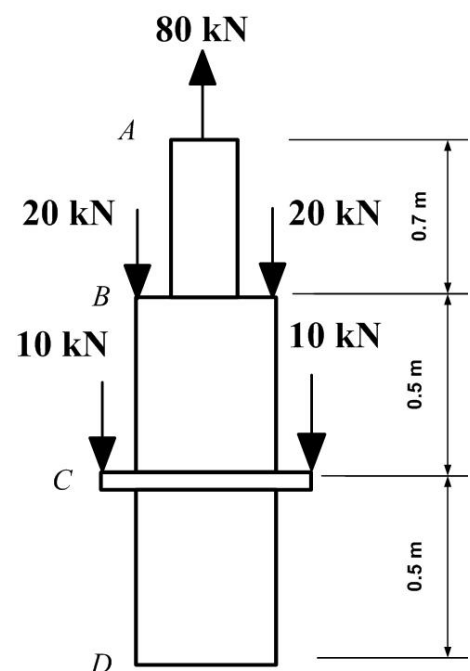
**Answer the following questions:**

### **Question one (3 marks)**

A Steel tensile test specimen has a cross sectional area of  $2 \text{ cm}^2$  and a gauge length of 90 mm, the gradient of elastic section is 400 kN/mm determine the modulus of elasticity.

### **Question two (12 marks)**

The steel bar shown in the figure is made from two segments having cross-sectional areas of  $A_{AB} = 600 \text{ mm}^2$  and  $A_{BD} = 1000 \text{ mm}^2$ . Determine the vertical displacement of end  $A$  and displacement of  $B$  relative to  $C$ . Calculate the stress in each part ( $E = 200 \text{ GPa}$ ). Also, Draw the Normal Force Diagram (N.F.D).



Good Luck Page(1/1)

Dr. Rola Afify