

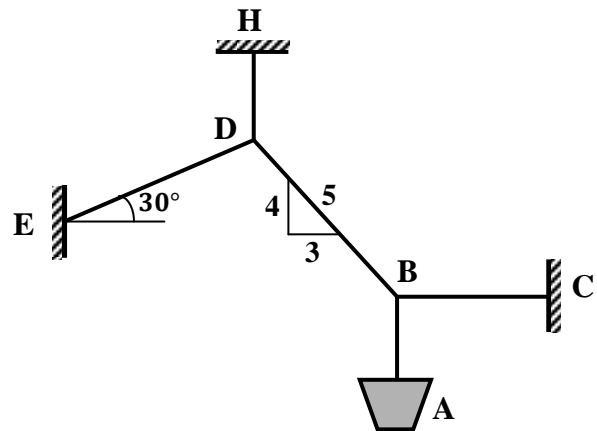


**College of Engineering & Technology**  
 Department : Basic and Applied Sciences.  
 Examinars : Prof. Dr. Mohamed Abbasi and the staff.  
 Course : Engineering Mechanics ( 1 )-Statics.  
 Course Cod : BA141  
 Final Exam. Marks : 40  
 January- 2014 Time : 2 Hrs.

Answer the following questions:

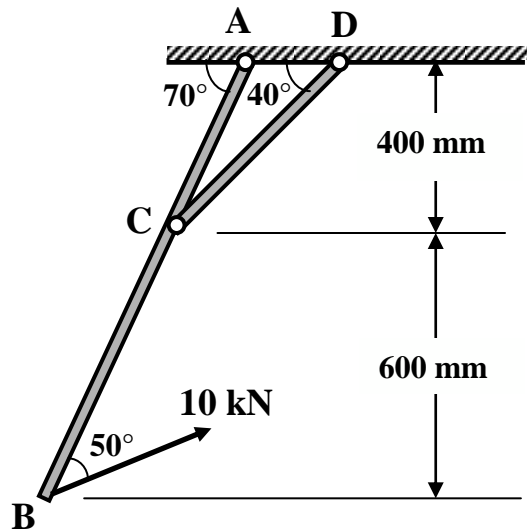
Question(1):(6-Marks):

If the bucket at A weighs 1 kN , determine the tension developed in each wire.



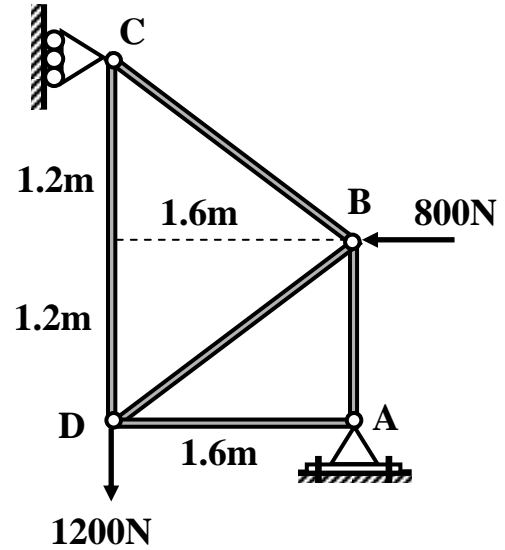
Question(2): (8-Marks):

In the shown equilibrium position of rod AB , Determine the horizontal and vertical components of reaction of the pin at A and the force in the weightless link CD



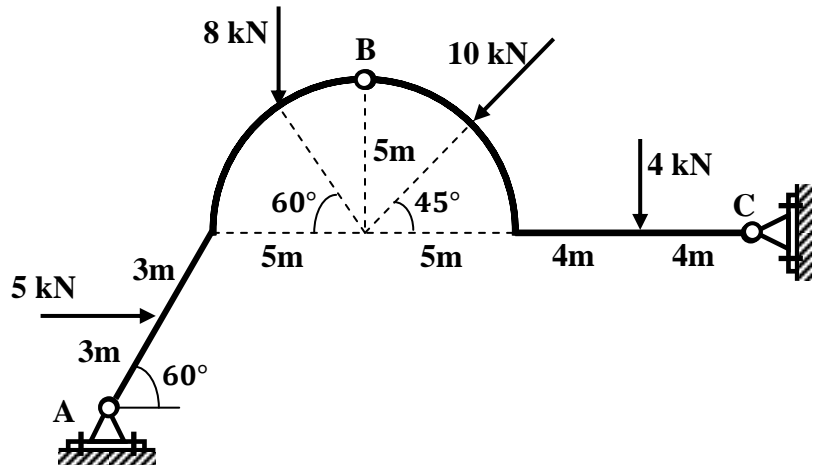
**Question(3): (8-Marks):**

For the shown truss, determine the force in each member. Indicate whether the members are in tension or compression.



**Question(4): (10-Marks):**

For the shown frame, determine the horizontal and vertical components of reactions of each of the pins A, B, and C.



**Question(5): (8-Marks):**

If the coefficient of static friction between the spool and the horizontal surface at C is  $\mu_s = 0.2$  and the spool is about to slip, determine:

- a-the force in the weightless member AB.
- b-the normal reaction at C.
- c-the weight of the spool W.

