EASTERN UNIVERSITY, SRILANKA

FIRST YEAR FIRST SEMESTER EXAMINATION IN AGRICULTURE - 2011/2012

(Nov/Dec 2013)

AEN 1101 – APPLIED MECHANICS (1:15/00)

Re-Repeat

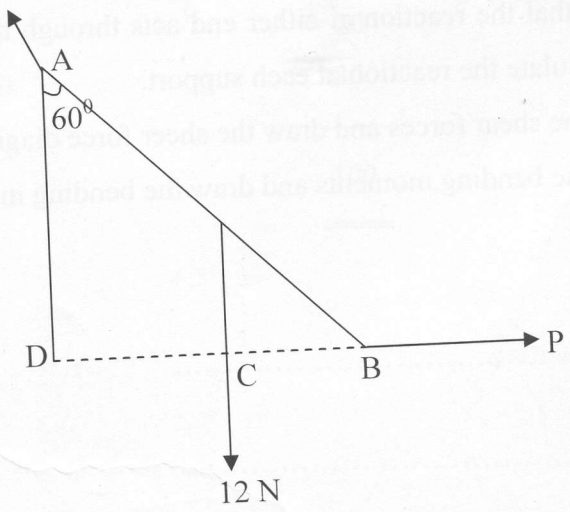
Answer questions

Time: One hour

01. (a) i. State the laws of friction.

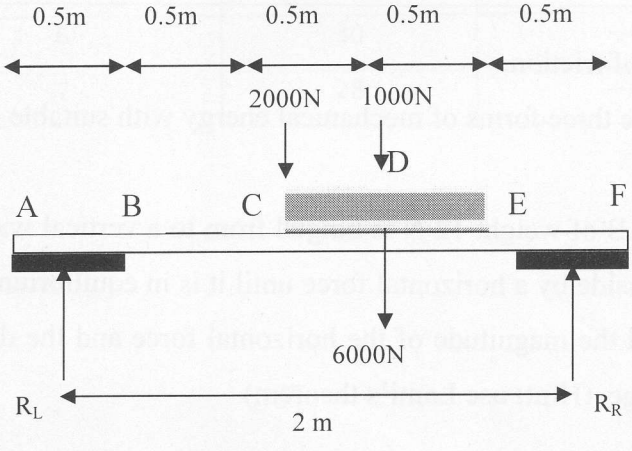
ii. Write down the three forms of mechanical energy with suitable equations.

(b) A uniform rod AB of weight 12 N is hinged from to a vertical wall at a point A. The end B is pulled aside by a horizontal force until it is in equilibrium and inclined at 60^0 to the wall. Find the magnitude of the horizontal force and the direction of the force acting at the hinge. (Hint: use Lami's theorem)



(PTO)

02. A horizontal beam ABCDEF is 2.5 m long and AB=BC=CD=DE=EF=0.5 m. Ends rest on broad supports giving uniformly distributed reactions over AB and EF. A concentrated load of 2000 N acts at C and 1000 N at D. In addition, a uniformly distributed load of 6000 N extends over the length CE as shown below.



(i) Assuming that the reaction at either end acts through the midpoint of the supporting length, calculate the reaction at each support.

(ii) Calculate the shear forces and draw the sheer force diagram.

(iii)Calculate the bending moments and draw the bending moment diagram.