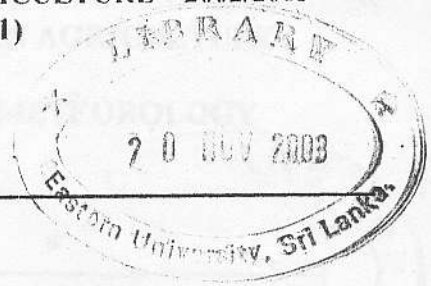# EASTERN UNIVERSITY, SRI LANKA
FIRST YEAR FIRST SEMESTER EXAMINATION IN AGRICULTURE – 2002/2003
APPLIED MECHANICS (AEN 1101)

Answer all questions
Time allowed: Two hours

(Repeat)

1. (a) Define the Law of Triangle of Forces.

   (b) A weight 14 kg is suspended by two strings 16 cm and 12 cm long and the other ends are fixed at two points 20 cm apart in the same horizontal level. Find the tension in the strings.

2. (a) What are the assumptions made in the analysis of stresses in the members of a truss.

   (b) A truss is loaded as shown in the figure given below. Determine the reactions at the supports and the stresses in the members of the truss.
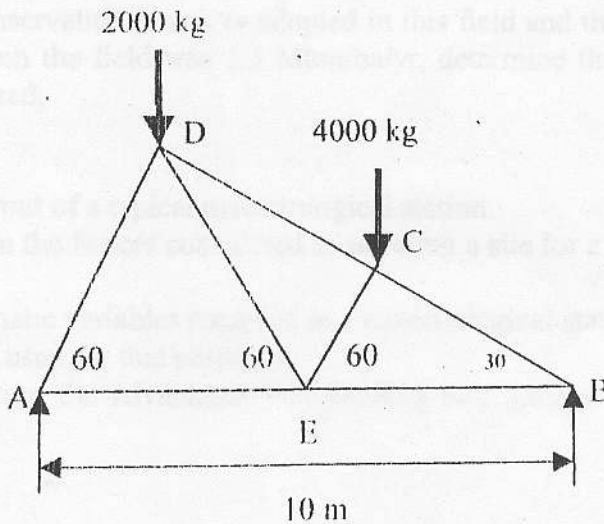
3. (a) Define the term Coefficient of Friction.

   (b) A plane is inclined at 15^0 to the horizontal. If a force of 5 kg acting parallel to the plane will just prevent à weight of 12 kg from sliding down, find the coefficient of friction.

4. (a) Briefly describe the 3 forms of mechanical energy.

   (b) 10 m³ of water is lifted to a height of 30 m and delivered with a velocity of 4.9 m/s.
   - (i) What is the amount of energy is spent during this process?
   - (ii) What is the energy of water stored to the height at 30 m?
   - (iii) What is the Horse Power of the pump if the overall efficiency is 60%? Assume the time required to lift the water is 20 minutes.