

EASTERN UNIVERSITY, SRI LANKA
FIRST YEAR FIRST SEMESTER EXAMINATION IN AGRICULTURE- 2006/2007
EXTERNAL DEGREE
AEN 1101 APPLIED MECHANICS (1:15/00)

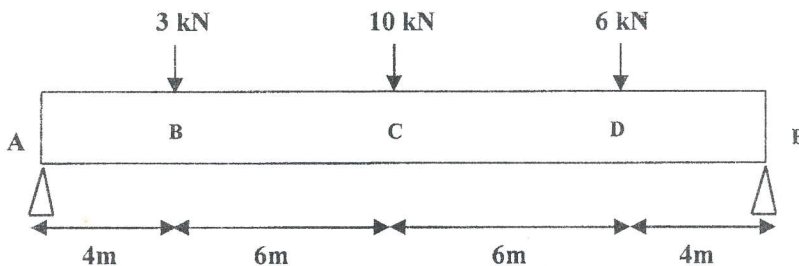
Answer all questions

Time: One hour

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01. (a) Define the term coefficient of friction
(b) Briefly state the law of friction
(c) A body of mass 20 kg is placed on an inclined surface having a slope of 60° . The frictional coefficient between body and surface of plane is 0.2. Calculate the acceleration of the body.

02. (a) Illustrate the types of loads on a beam.
(b) Three different concentrated forces are acting on the points B, C and D on a simply supported beam AE as shown below. The weight of the beam can be considered as negligible.



- (i) Draw the free body diagram of this beam
(ii) Calculate the bending moments and draw the bending moment diagram of the beam
(iii) Calculate the shear forces at the points from A-E and draw the shear force diagram.

(PTO)

03. (a) Define the term elasticity
- (b) A metal wire is suspended along with a suspending weight on it. If α is the longitudinal strain and Y is its Young's modulus of elasticity, then show that the elastic potential energy per unit volume is $\frac{1}{2}Y\alpha^2$
- (c) A load of 2 kg resulted an elongation of 1mm in a wire of 3m length with 1mm diameter. Calculate the Young's modulus of wire.