

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

Answer all questions

This question paper should be answered only in English

Time allowed: One hour

1. (a) Define the following terms,

- (i) Ductility
- (ii) Elastic Limit
- (iii) Hooke's Law
- (iv) Factor of Safety



(b) A mild steel rod 2 cm diameter and 3 m long carries an axial pull of 6 tonnes. If the Young's Modulus of mild steel is  $2 \times 10^6 \text{ kg/cm}^2$ , calculate the elongation of the rod.

2. (a) Define the terms "Shear Force" and "Bending Moment".

(b) Draw the typical free body diagram for the following:

- (i) A cantilever beam with a point load at the open end.
- (ii) A simply supported beam with uniformly varying load throughout.

(c) Construct Shear Force and Bending Moment diagram for a simply supported beam given below,

