NOTRE DAME UNIVERSITY (NDU)
FACULTY OF ENGINEERING
MECHANICAL DEPARTMENT

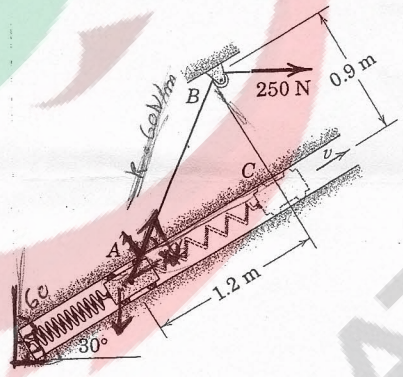
MIDTERM -2- **DATE 26/07/2010**

ENGINEERING MECHANICS (DYNAMICS)
COURSE CODE : MEN 201 **TIME ALLOWED :1hr.**
INSTRUCTOR : **CLOSED BOOK**

ANSWER THESE QUESTIONS

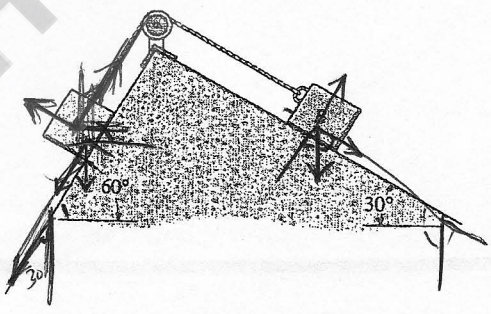
QUESTION – 1- (6 points)

The 10-kg slider A moves with negligible friction up the inclined guide. The attached spring has a stiffness of 60 N/m and is stretched 0.6 m in position A, where the slider is released from rest. The 250-N force is constant and the pulley offers negligible resistance to the motion of the cord. **Calculate** the velocity of the slider as it passes point C.



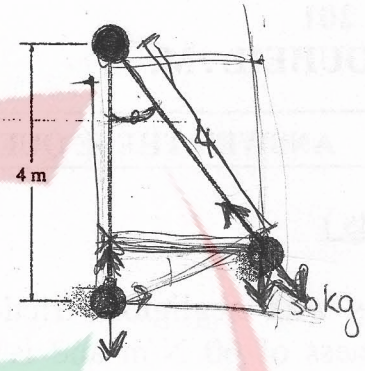
QUESTION – 2- (6 points)

The double inclined plane supports two blocks A and B, each having a weight of 10 lb. If the coefficient of kinetic friction between the blocks and the plane is 0.1. **Determine** the acceleration of each block.



QUESTION – 3- (8 points)

The ball has a mass of 30 kg and a speed 4 m/s at the instant it is at its lowest point, $\theta = 0^\circ$. **Determine** the tension in the cord and the rate at which the ball s speed is decreasing at the instant $\theta = 20^\circ$. Neglect the size of the ball.



GOOD LUCK