

Name _____ Section _____

ES204
Examination III
February 9, 2001

Problem	Score
1	/30
2	/30
3	/40
Total	/100

Show all work for credit
AND
Turn in your signed help sheet
AND
Stay in your seat until the end of class

NOTE:
Set up all the equations first and save the solutions to the end (the actual numerical answers will only be worth 2 points).

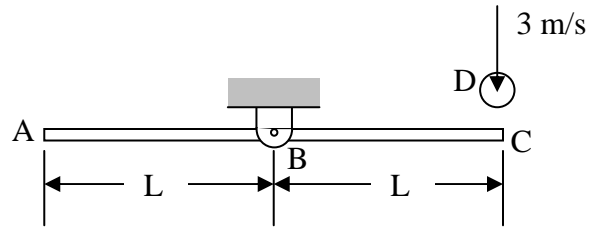
Name _____
ES204 Examination III

Problem 1

30 pts
Feb. 9, 2001

Member ABC has a mass of 2.4 kg, a mass moment of inertia of $0.45 \text{ kg}\cdot\text{m}^2$ and is attached to a pin support at B. An 0.8 kg sphere D strikes the end C of member ABC with a velocity of 3 m/s. Knowing $L = 0.75 \text{ m}$ and that the coefficient of resitution is 0.5 determine immediately after impact:

- angular velocity of ABC
- the velocity of the sphere.



A 5 kg wheel with a radius of gyration of 80 mm about its center rolls without slipping down the surface shown below. The velocity of the center of the wheel is equal to 0.3 m/s at point A (where the surface starts to curve). Determine:

- the friction force, normal force and angular acceleration of the wheel just before the wheel reaches A
- the friction force, normal force and angular acceleration just after the wheel passes A

