

# "SOLUTIONS"

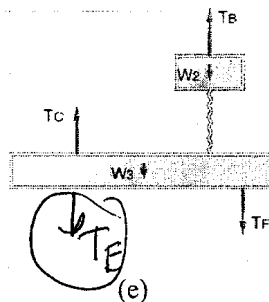
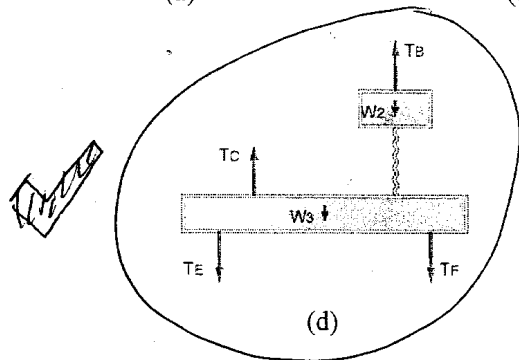
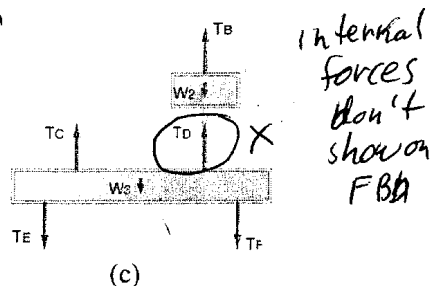
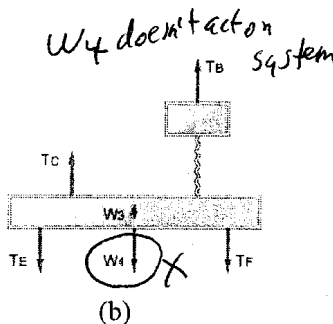
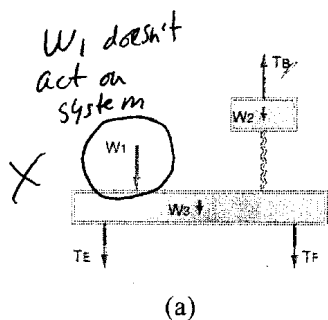
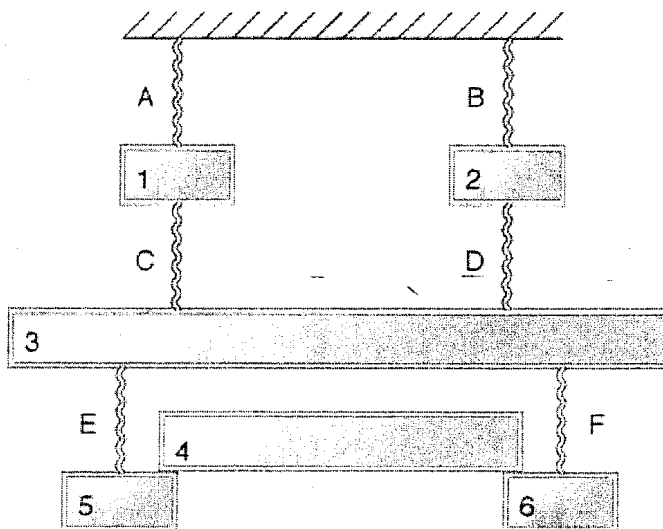
Quiz 2, ENGRD 202, Feb 14, 2003

Name: RUINA

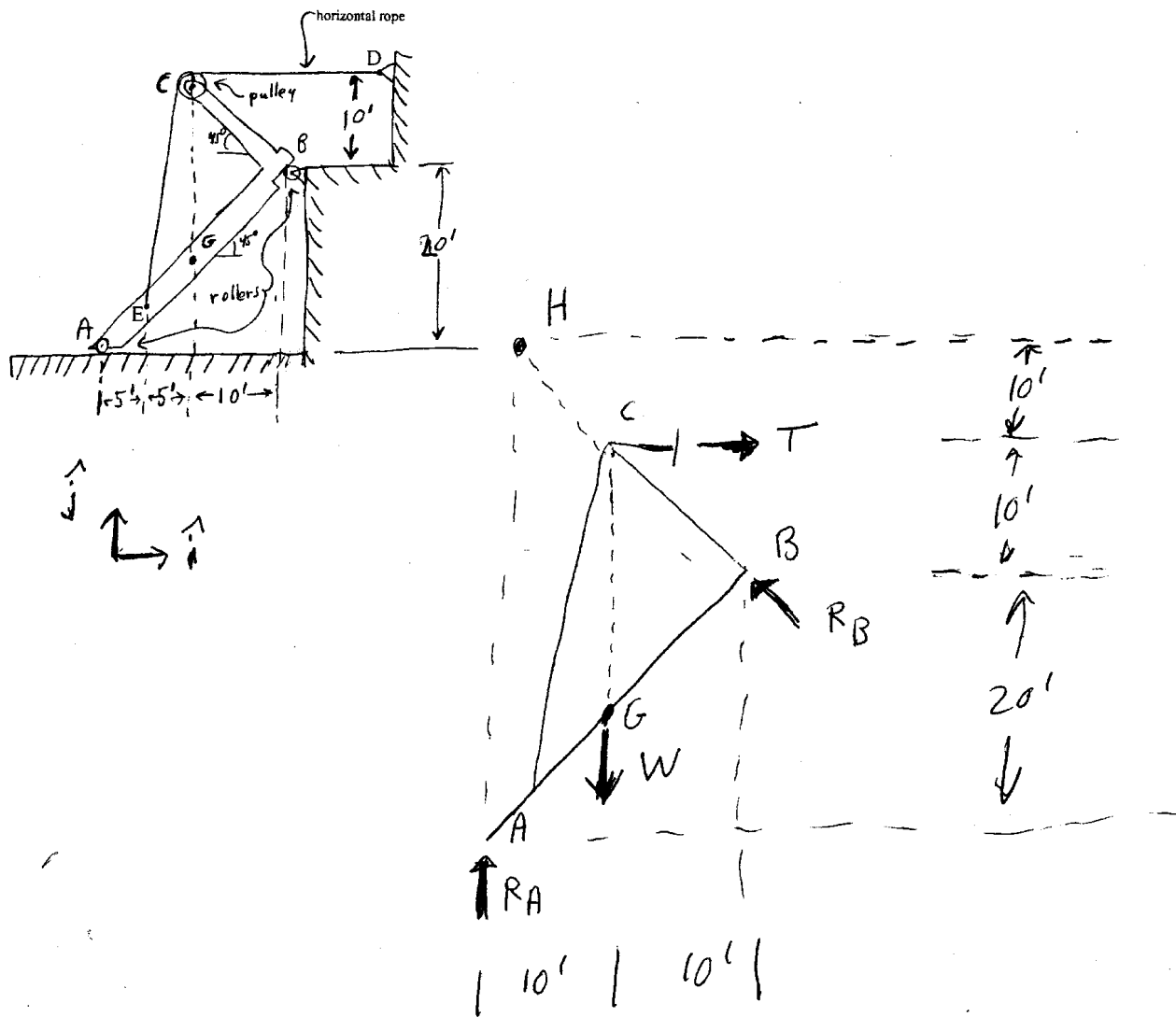
TA: \_\_\_\_\_

Section Day and time: \_\_\_\_\_

3) (7 points) Consider the "body" (system) consisting of the masses 2 and 3 below and the cord D connecting them. One of the free body diagrams below is correct and the others are incorrect. Circle the correct diagram and clearly mark (and describe with a few words as if grading a student) one error on each of the bad free body diagrams.



- 4) (10 pts) The center of mass of 200 pound structure AEGBC is at G. It is held by rollers at A and B as well as with the rope which starts at E, wraps around the pulley at C, and ends at D. Find the force of the ground on the structure at A and the tension in the rope. Define any base vectors you need.



$$\sum \underline{M}_{/C} = \underline{0} \Rightarrow \boxed{R_A = 0} \quad (\text{no other forces contribute})$$

$$\sum \underline{M}_{/H} = \underline{0} \Rightarrow \left\{ \begin{array}{l} -W \cdot 10' \hat{k} + T \cdot 10' \hat{k} = 0 \end{array} \right\}$$

$$\Rightarrow \boxed{T = W = 200 \text{ lb}}$$

$$\boxed{\begin{array}{l} \underline{F}_A = \underline{0} \\ T = 200 \text{ lb.} \end{array}}$$