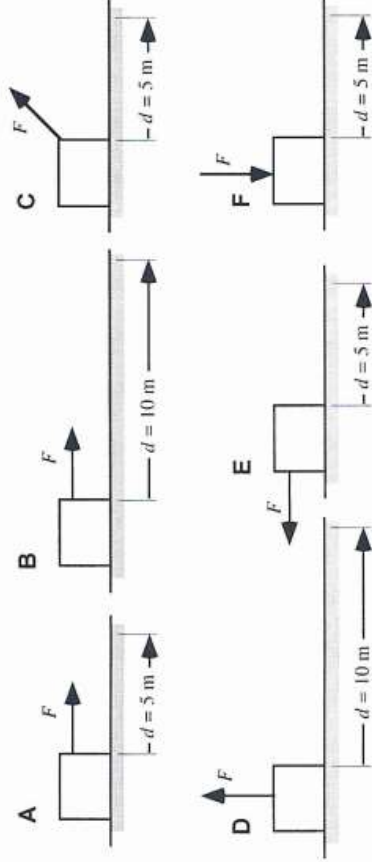3)

Equal Forces on Boxes—Work Done on Box[68]

In the figures below, identical boxes of mass 10 kg are moving at the same initial velocity to the right on a flat surface. The same magnitude force, F_s, is applied to each box for the distance, d, indicated in the figures.

Rank these situations from greatest to least in order of the work done on the box by F while the box moves the indicated distance to the right.

A   F $d = 5$ m

B   F $d = 10$ m

C   F $d = 5$ m

D   F $d = 10$ m

E   F $d = 5$ m

F   F $d = 5$ m

Greatest 1 ___ 2 ___ 3 ___ 4 ___ 5 ___ 6 ___ Least

Or, all of the boxes experience the same work. ___

Please carefully explain your reasoning.