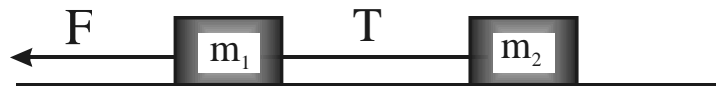


### Quiz 3:2D Newton's 1<sup>st</sup> Law – With Friction

A mass of  $m_1 = 6.00$  kg is sitting on a horizontal surface which has a coefficient of sliding friction of  $\mu_k = 0.663$ . A force  $F$  is applied to this mass so as to pull the mass to the left at a constant speed. This mass is in turn attached to a second mass  $m_2 = 4.00$  kg by a string which has a tension  $T$ .



1. On the diagrams below indicate all of the forces acting on masses  $m_1$  and  $m_2$  as they move to the left at a constant speed. [3 pts]



2. What will be the magnitude of the frictional force acting on  $m_2$  as it moves to the left at a constant speed? [3 pts]
3. What will be the magnitude of the tension  $T$  in the string between  $m_1$  and  $m_2$  as this system is pulled to the left at a constant speed? [3 pts]
4. What is the magnitude of the applied force  $F$ ? [3 pts]
5. What will be the magnitude of the normal force acting on mass  $m_1$ ? [3 pts]