1. Describe the free-body diagram of a body.  

2. Two weights are hung as shown. 
   (a) Determine the tensions $T_{AJ}$ and $T_{DI}$ in wires $AJ$ and $DI$. (b) Draw the free-body diagrams for rings $A$, $B$, $C$, and $D$, separately, in terms of the eight unknown tensions: $T_{AB}$, $T_{AD}$, $T_{AE}$, $T_{BC}$, $T_{BF}$, $T_{CD}$, $T_{CG}$, and $T_{DH}$. 

1. *Free-body diagram.* (See text.)  

2. 

**Body $J$:** 

\[ +\uparrow \sum F_y = 0: \quad T_{AJ} - 10 = 0 \]

\[ T_{AJ} = 10 \text{ lb} \]  

**Ring $A$:** 

\[ T_{AE}, T_{AB}, T_{AD} \] 

\[ 10 \text{ lb} \]  

**Ring $C$:** 

\[ T_{BC}, T_{CD}, T_{CG} \] 

\[ 10 \text{ lb} \]  

**Body $I$:** 

\[ +\uparrow \sum F_y = 0: \quad T_{DI} - 15 = 0 \]

\[ T_{DI} = 15 \text{ lb} \]  

**Ring $B$:** 

\[ T_{AB}, T_{BC}, T_{BF} \] 

**Ring $D$:** 

\[ T_{AD}, T_{CD}, T_{DH} \] 

\[ 15 \text{ lb} \]