Q- Assume that a person (mass 80kg) that is performing light work has a power output of 240W and does this continuously for an hour. Also assume that 30% of this energy does useful work and that the remaining 70% only increases the temperature of the person. What is the temperature increase after 1.0 hour (in degrees C), if the person is taken to consist of water. Specific heat capacity of water is 4.186 kJ/K

The total energy generated by the person in one hour Q = 240*3600 = 864000 J = 864 KJ

The energy remaining with the body Q' = 70% of 864000 = 604.8 KJ

As most of the body is consist of water and hence the specific heat capacity of the body should be considered same as that of water i.e. 4.186 KJ/kg/deg, increase in temperature of the person in one hour is given by

$$\Delta Q = m*s*\Delta t$$

Or $\Delta t = \Delta Q /(m*s) = 604.8/(80*4.186) = 1.81^0$ C.