ANSWER QUESTION 2 ONLY

(b) use $KE_i + PE_i = KE_f + PE_f$

$$\frac{1}{2}mu^2 + 0 = \frac{1}{2}mv_f^2 + mgh$$

$$\frac{1}{2}40\,3^2 + 0 = \frac{1}{2}40v_f^2 + 40 \times 9.8 \times 0.25$$

$$-20v_f^2 = 40\left(9.8 \times 0.25 - \frac{1}{2}3^2\right)$$

$$v_f = 2.0\ ms^{-1}$$

(c) use $KE_i + PE_i = KE_f + PE_f$

$$\frac{1}{2}mu^2 + 0 = KE_f + 40 \times 9.8 \times .5$$

$$KE_f = \frac{1}{2}40 \times 3^2 - 40 \times 9.8 \times .5$$

$$= -16\ J$$

This is impossible since $KE = \frac{1}{2}mv^2$ must be greater than or equal to zero

Conclusion: KE decreases to zero for an object height less than 0.5m so object never reaches this height.