PRACTICAL 5

MANUAL CALCULATIONS

* Entropy (root node)

$$= -\frac{9852}{20000}\log_2\left(\frac{9852}{20000}\right) - \frac{10148}{20000}\log_2\left(\frac{10148}{20000}\right)$$

$$= 0.999842$$

* entropy (college = ONE) =

$$-\frac{5023}{10048}\log_2\left(\frac{5023}{10048}\right) - \frac{5025}{10048}\log_2\left(\frac{5025}{10048}\right)$$

$$= 0.99999997$$

* entropy (college = ZERO) =

$$-\frac{4829}{9952}\log_2\left(\frac{4829}{9952}\right) - \frac{5123}{9952}\log_2\left(\frac{5123}{9952}\right)$$

$$= 0.99937$$

* Inf. Gain $= 0.999842 - \left[\frac{10048}{20000}(0.99999997) + \frac{9952}{20000}(0.99937)\right]$

$$= 0.0001555$$