Computer Organizations – CSE 331

Homework #1

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Q1)

Yield = Number of good chips / Total chips * %100 = %80

Yield will decrease %10 per year

%80 * (0,9)^4 = %80 * 0,66 = **%52,8 (After 4 years)**

%52,8 = Number of good chips / 120 * %100

Number of good chips = 63,36

10000$ (cost)

Cost will decrease %10 per year

10000$ * (0,8)^4 = 10000$ * 0,4096 = **4096$ (After 4 years)**

1 chip = 4096 $ / 63,36 = 64,65 $

Q2)

a)

CPU clock cycle(A) = (50*2 + 10*4 + 2*3) * 10^6 = 146 * 10^6

CPU clock cycle(B) = (80*2 + 5*4 + 1*3) * 10^6 = 183 * 10^6

183 * 10^6 / 146 * 10^6 = 1,25

A is 1,25 times faster than B

b)

CPU Time = CPU clock cycles / Clock rate(frequency)

100 ms = 146 * 10^6 / **Clock rate(frequency)**

Clock rate(frequency) = 146 * 10^6 / 100 * 10^-3 seconds

Clock rate(frequency) = 1,46 * 10^9 **= 1,46 GHz**