"I hereby pledge that I will strictly adhere to academic integrity codes and the work done on this examination is solely my own and I will not receive/give any help from/to anybody or source during this examination".

Q1)

a)

> $CPI = \sum CPI \times F ...$
>
> Clock cycle = instruction count $\times$ CPI
>
> CPU time = clock cycle $\times$ clock cycle time

$$CPI = 3 \times 0.24 + 5 \times 0.56 + 2 \times 0.2 = 0.72 + 2.80 + 0.4 = 3.92$$

Total CPI = 3.92

b)

1 class   C instruction = 2 cycles   B instruction = 5 cycle

2 class   C   "   4 cycles

C inst

$$CPI = 3 \times 0.24 + 4 \times 0.56 + 2 \times 0.2 = 0.72 + 2.24 + 0.4 = 3.36$$

New Total CPI = 3.36

c) Average CPI

for Part a: 3.92 / 10 cycle = 0.392

for Part b: 3.36 / 9 cycle ≈ 0.37

a is faster than b   0.392/0.37 times.

$0.72 + 0.8 + 0.4 =$
1.2
1.92