

COS 122 Assignment 1

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Task 1

- 1.1) C. System bus
- 1.2) D. Serial
- 1.3) D. Cache

Task 2

Level 1 (9 microsecond access time) (35% of all data)

Level 2 (23 microsecond access time) (68% of all data)

Level 3 (65 microsecond access time) (100% of all data)

No transference of data between levels.

Therefore level 2 contains 33% of all data (68% less 35%)

Therefore level 3 contains 32% of all data (100% less 68%)

Total access time level 1 = $0.35 (9\mu) = 3.15\mu$

Total access time level 2 = $0.33 (23\mu) = 7.59\mu$

Total access time level 3 = $0.32 (65\mu) = 20.8\mu$

Total access time = $3.15\mu + 7.59\mu + 20.8\mu$

= 31.54μ

Task 3

3.1) $11\text{ms} + 10\text{ms} + 56\text{ms} + 19\text{ms} = 96\text{ms}$

3.2) $1\text{ms} + 2\text{ms} + 8\text{ms} + 5\text{ms} = 16\text{ms}$

3.3) CPU time = 16ms

Total time 96ms

CPU utilization = $16/96 = 16.67\%$ utilization

3.4) 96ms

3.5) 66.67%

3.6)

3.7)

Task 4

4.1) AC = 0000

IR = 1206

4.2) PC = 105

AC = 2000

IR = 1206

Task 5

5.1) 6

5.2) 12

5.3) 0