Scott Bebington

U21546216

Assignment 1

Task 1

1.1) A
1.2) D
1.3) D

Task 2

Level 1 access time = 7 microseconds, 33% of data stored here

Level 2 access time = 21 microseconds, 66% of data stored here

Level 3 access time = 63 microseconds, 100% of data stored here

Level 2 contains roughly 33% of all data (66% less 33% from level 1)

Level 3 contains roughly 34% of all data (100% less 66% from level 2 and 1)

Total access time for level 1 = 0.33x7microseconds = 2.31 microseconds

Total access time for level 2 = 0.33x21microseconds = 6.93 microseconds

Total access time for level 3 = 0.34x63microseconds = 20.79 microseconds

Total access time = 20.79 + 6.93 + 2.31

= 30.03 microseconds

Task 3

3.1) 13ms + 10ms + 56ms + 19ms = 98ms

3.2) 3ms + 2ms + 8ms + 5ms = 18ms

3.3) 18ms/98ms = 18.37%

3.4) 56ms

3.5) 32.14%

3.6) 56ms

3.7) (3.1) 98ms/4 = 24.5ms

3.8) System 1 has better CPU utilization as there is more capacity to complete tasks speeding the system up.

Task 4

4.1)

PC = 101

IR = 1205

AC = 000A

4.2)

PC = 205

IR = 2207

AC = 000F

4.3)

205 = 000A

206 = 000F

207 = 0005

Task 5

5.1) 96 bits

5.2) 4

5.3) 16

5.4) 32bit data bus.