

(2) (a) []

(3)

$$(n-1)(q+s) \leq t$$

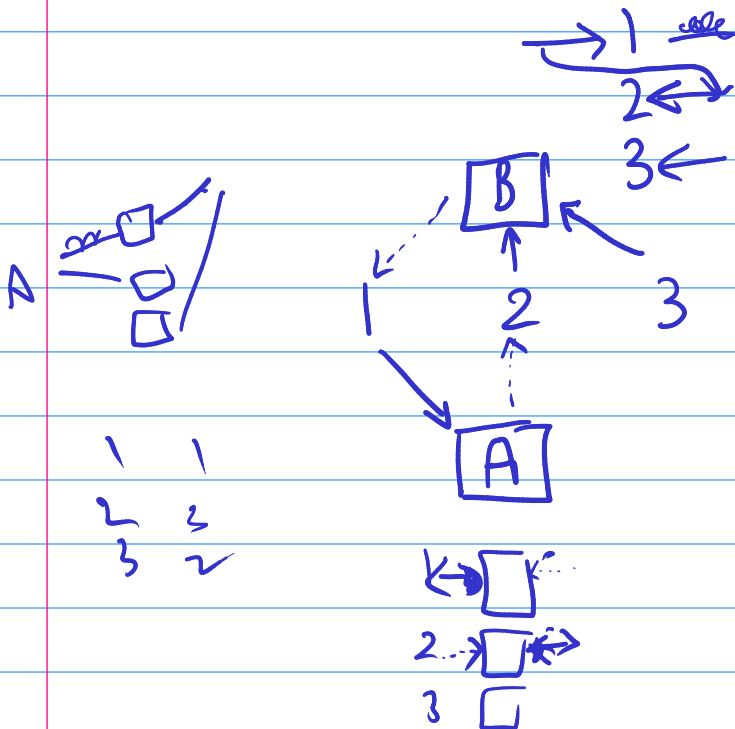
$$q > s$$

$$q+s \leq \frac{t}{n-1}$$

$$\left(s < q \leq \left(\frac{t}{n-1} - s \right) \right)$$

(c)

3 (b) A and B



$$\frac{6}{36} = \frac{1}{6}$$

(d)

1	2	1	3
1	3	1	2
2	4	1	4

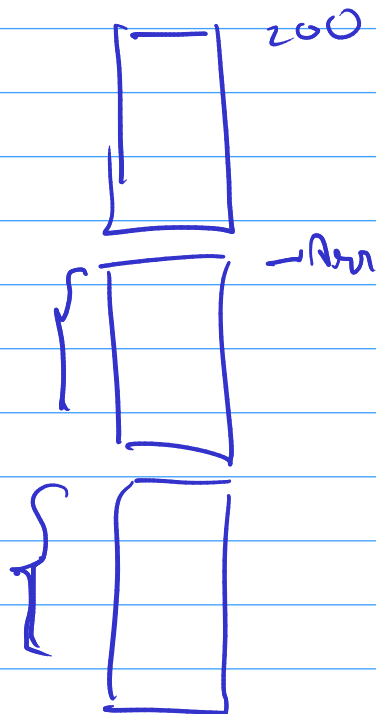
(a) Consider a paging system

200 ns

EMA: 400 n
vs

$$0 + 400 \times 0.25$$

(b)



At

2500

0×111

0×1

0×200

$0 \times 4EF \rightarrow \text{page fault} \Rightarrow 0 \times DDE$

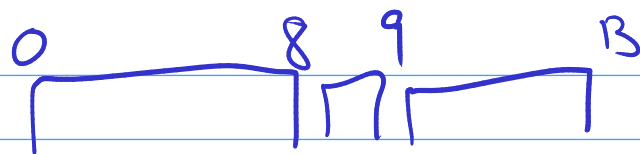
$0 \times 700 \Rightarrow 0 \times 3EF$

(i)



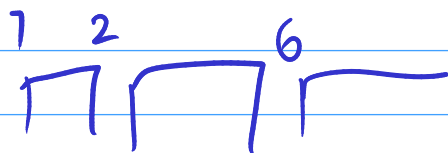
$8 + 12 - 0.4 \times 13 - 1$

$$\frac{20 + 11.6}{3} = \frac{31.6}{3} : 10.53$$



$$\frac{8 + 9 - 1 + 13 - 0.4}{3}$$

$$\begin{array}{r} 76 \\ 73 \\ 29 \\ \hline 28.6 \\ 3 \\ \hline 9.53 \end{array}$$



$$\frac{8 \quad 14 + 6 - 0.4 + 2 - 1}{3}$$

$$\frac{20.6}{3} = 6.866$$

(1.1)

15, 13

10, 13

13, 15 ✓

13, 13

None of these

1024

1024 words

$$2^{10} \times 2^3$$

(15)

(13)

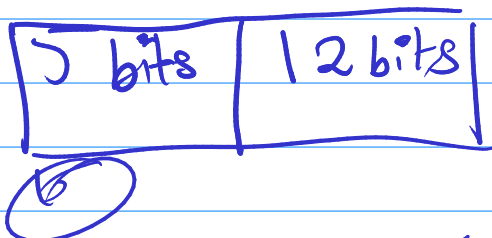
(7)

(15)

$$2^{10} \times 2^2 \times 2^2$$

32 sets

$$\begin{array}{r} 32 \\ 17 \\ 15 \end{array}$$



$$(20 \text{ ns}) + \frac{1}{10^6} \times 10^6 \text{ ns}$$

6
7
8
9
10

1
2
3
4
5
6
7
8
9
10

10+5
5

(a)
(b)
(c)
(d)

* 8ms
* 5ms

$$(20h) + (170)(1-h)$$

$$\frac{120(20h)}{100}$$

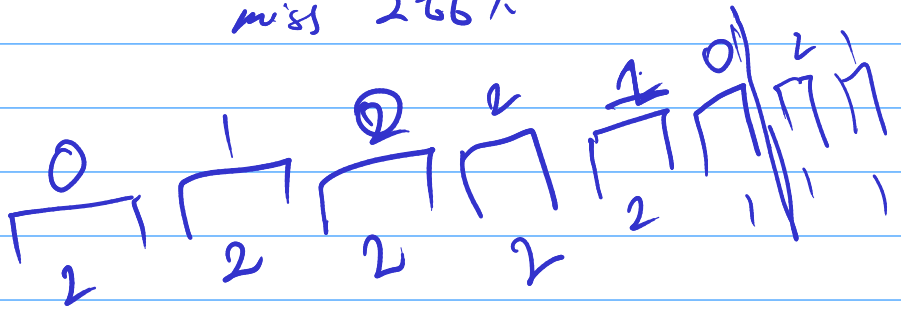
$$\frac{146}{150}$$

$$2h = 170 \pm 150h$$

hit rate: 97.33%

miss: 2.66%

(b)



0
1
0
3

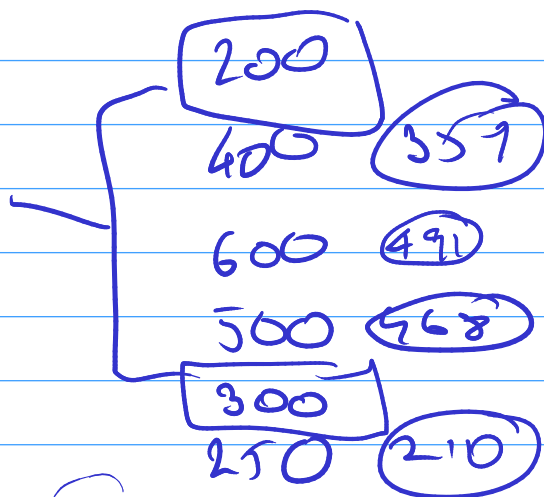
③ $P_1 = 115$
 $P_3 = 125$
 $P_2 = 135$

(a)
(3)

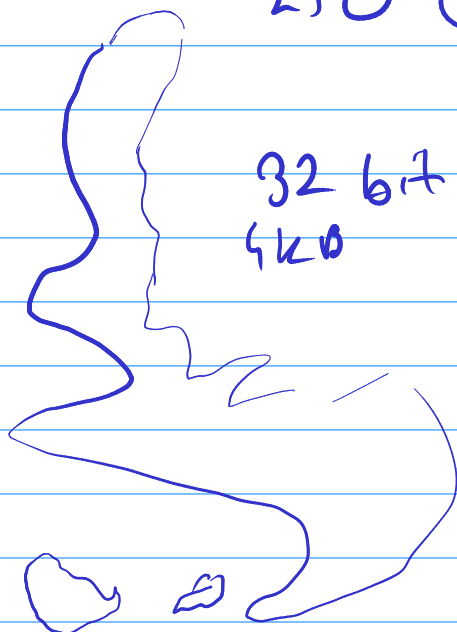
[1% page]

1000 words

(4) (a)



(b)



32 bit
4KB

$2^{20} \times$

$2^{22} = 4MB$

(c)