

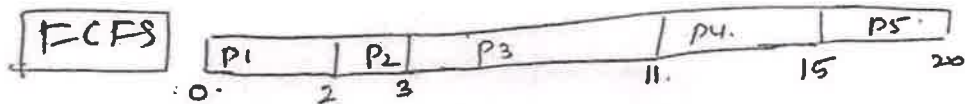
Q

Q 137-b.

①

Q.P. code 138498

Process	BT	Priority
P1	2	2
P2	1	1
P3	8	4
P4	4	5
P5	5	3

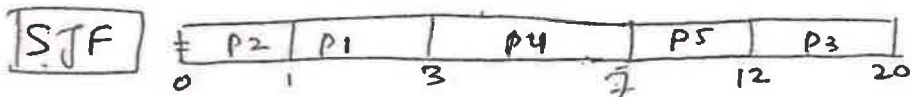


$$\text{Average wait time} = \frac{0 + 2 + 3 + 11 + 15}{5}$$

$$= \frac{31}{5} = \underline{6.2}$$

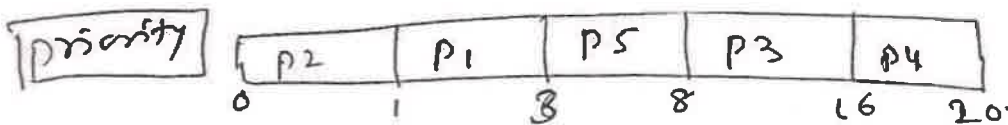
$$\text{ATAT} = \frac{(2-0) + (3-0) + (11-0) + (15-0) + (20-0)}{5}$$

$$= \frac{51}{5} = \underline{10.2}$$



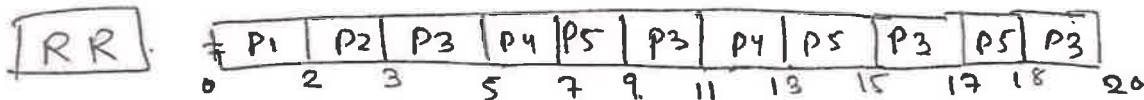
$$\text{AWT} = \frac{(1 + 0 + 12 + 3 + 7)}{5} = \frac{23}{5} = \underline{4.6}$$

$$\text{ATAT} = \frac{(3 + 1 + 20 + 7 + 12)}{5} = \frac{43}{5} = \underline{8.6}$$



$$\text{AWT} = \frac{1 + 0 + 8 + 16 + 3}{5} = \frac{28}{5} = \underline{5.6}$$

$$\text{ATAT} = \frac{3 + 1 + 16 + 20 + 8}{5} = \frac{48}{5} = \underline{9.6}$$

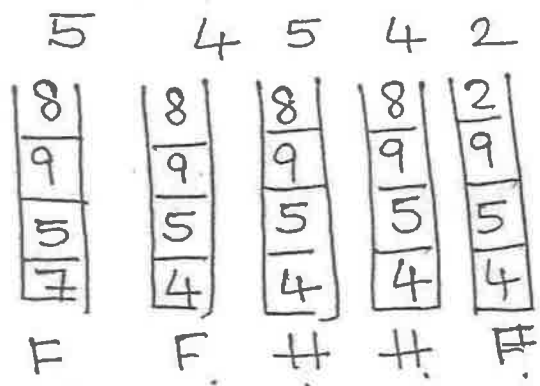


$$\text{AWT} = \frac{(0) + (2) + (3 + 9 + 15 + 18) + (5 + 11) + (7 + 13 + 17)}{5}$$

$$= \frac{0 + 2 + 45 + 16 + 37}{5} = \frac{100}{5} = 20$$

$$\text{ATAT} = \frac{2 + 3 + 20 + 13 + 18}{5} = \frac{56}{5} = \underline{11.2}$$

Q4 (a) Frame size is 4 (2)



Hit = 9

Fault = 13

LRU



Hit = 9

Fault = 13

Optimal

03

1	2	3	4	5	3	4	1	6	7	8
1	1	1	1	1	1	1	1	6	6	6
	2	2	2	5	5	5	5	5	5	5
		3	3	3	3	3	3	3	7	7
			4	4	4	4	4	4	4	8
M	m	m	m	M	H	H	H	M	M	M

7	8	9	7	8	9	5	4	5	4	2
6	6	9	9	9	9	9	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5
7	7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8	2
H	H	M	H	H	H	H	M	H	H	M

No. 7 Hits = $8+3=11$

No. 7 Miss = 14 (including empty frames)
= 7 (excluding empty frames)