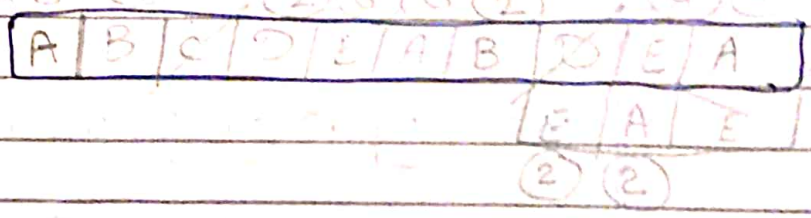
DIGITAL ASSIGNMENT - 2

A1

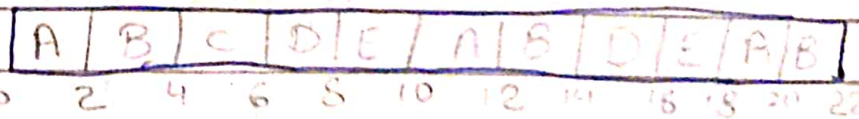
a) Raund Robin Quantum = 2

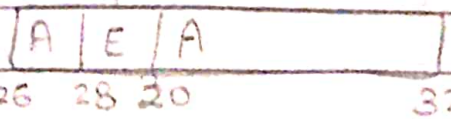
PROCESS	PRIORITY	AT	BT	CT	TAT	WT
A	3	0	10	32	32	22
B	5	0	6	22	22	16
C	2	0	2	6	6	4
D	1	0	4	16	16	12
E	4	0	8	30	30	22

Running queue



Gantt Chart





$$\text{Avg TAT} = \frac{32 + 22 + 6 + 16 + 30}{5}$$

$$= 21.2 \text{ min}$$

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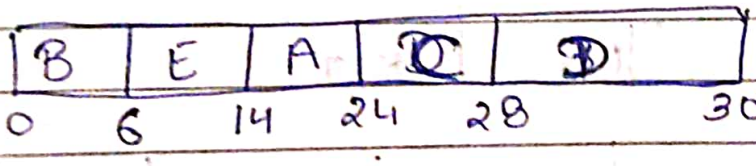
Avg - WT = 15.2

b) PRORITY

	PRIORITY	AT	BT	CT	TAT	WT
A	3	0	10	24	24	14
B	5	0	6	6	6	0
C	2	0	2	28	28	26
D	1	0	4	30	30	26
E	4	0	8	14	14	6

GANTT CHART

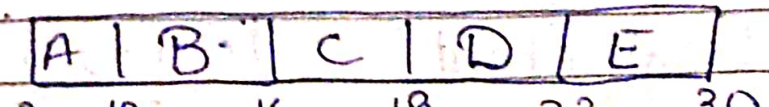


Avg TAT = 20.4

Avg WT = 14.4

c) FIRST COME FIRST SURVED

Gantt chart =



	PRIORITY	AT	BT	CT	TAT	WT
A	3	0	10	10	10	0
B	5	0	6	16	16	10
C	2	0	2	18	18	16
D	1	0	4	22	22	18
E	4	0	8	30	30	22

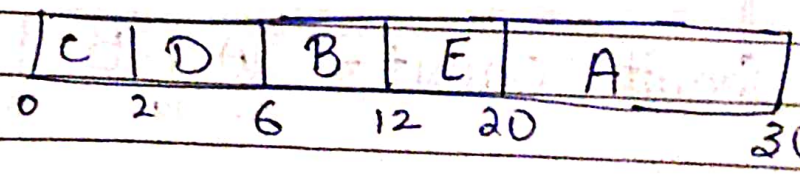
Avg TAT = 19.2

Avg WT = 13.2

d) SHORTEST JOB FIRST

	AT	BT	CT	TAT	WT
A	0	10	30	30	20
B	0	6	12	12	6
C	0	2	2	2	0
D	0	4	6	6	2
E	0	8	20	20	12

Gantt chart



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Avg TAT = 14.0

Avg WT = 8.0

So after studying all cases we came to known on conclusion that for the given Scenario the best is SJF.

A2

Instances : 6 3 4 3

PROCCESS	ALLOCATED	NEED	AVAILABEL
A	3 0 1 1	1 1 0 0	1 0 2 0
B	0 1 0 0	0 1 1 2	2 1 2 1
C	1 1 1 0	3 1 0 0	2 1 2 1
D	1 1 0 1	0 0 1 0	5 1 3 2
E	0 0 0 0	2 1 1 0	5 2 3 2
	5 3 2 2		6 3 4 2

Need of A 1100 > 1020 X

Need of B 0112 > 1020 X

Need of C 3100 > 1020 X

Need of D: 0 0 1 0
1 0 2 0 ✓

Need of E: 2 1 1 0
2 1 2 1 ✓

Need of A 1 1 0 0
2 1 2 1 ✓

Need of B 0 1 1 2
5 1 3 2 ✓

Need of C 3 1 0 2
5 2 3 2 ✓

D → E → A → B → C

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A4 2, 7, 3 2 1 7 6 0 1 0 3 5 4 1 5 2 4 6
7 5

① FIFO

-	-	3	3	3	3	3	0	0	[0]	0	0	4	4	4
-	7	7	7	7	[7]	6	6	6	6	6	5	5	5	[2]
2	2	2	[2]	1	1	1	1	[1]	1	3	3	3	1	1
M	M	M	H	M	H	M	M	H	H	M	M	M	M	H

4	[4]	4	4	5
2	2	2	7	7
1	1	6	6	6
M	H	M	M	M

6/20 → HIT RATION

14/20 → MISS RATIO

② LRU

-	-	3	3	3	7	7	7	1	1	1	5	5	5	[5]	5
-	7	7	7	1	1	1	0	0	[0]	0	0	4	4	4	2
2	2	2	[2]	2	2	6	6	6	6	3	3	3	1	1	1
M	M	M	H	M	M	M	M	M	H	M	M	M	M	H	M

5	6	6	6
2	2	7	7
4	4	4	5
M	M	M	M

3/20 = HIT RATIO

16/20 MISS RATIO

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(3) OPTIMAL

-	-	3	3	3	3	3	3	3	3	[3]	5	5	5	[5]
-	7	7	7	7	[7]	6	0	0	[0]	0	0	4	4	4
2	2	2	[2]	1	1	1	1	[1]	1	1	1	1	[1]	1
			M		M			M	M	M			M	M

5	5	5	5	[5]
4	[4]	6	6	6
2	2	2	7	7
		M		M

9|20 → HIT RATIO

11|20 MISS RATIO

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A-5 $P_1 = 226$ KB $P_2 = 75$ KB
$P_3 = 125$ KB $P_4 = 380$ KB

P_4	460 KB
P_3	150 KB
P_1	300 KB
	100 KB
P_2	200 KB

FIRST FIT

P_4	460 KB
P_3	150 KB
P_1	300 KB
P_2	100 KB
	200 KB

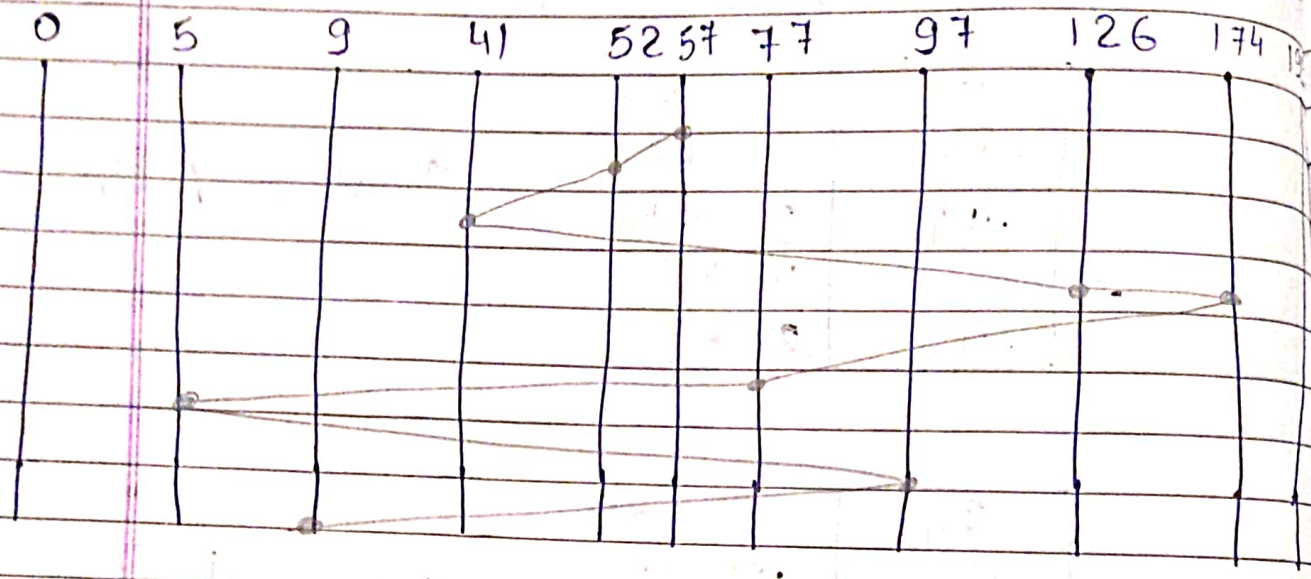
BEST FIT

P1 ~~226~~	460 KB
	150 KB
P2	300 KB
	100 KB
P3	200 KB

WORST FIT

P_4 will wait

A3 FIRST COME FIRST SERVE

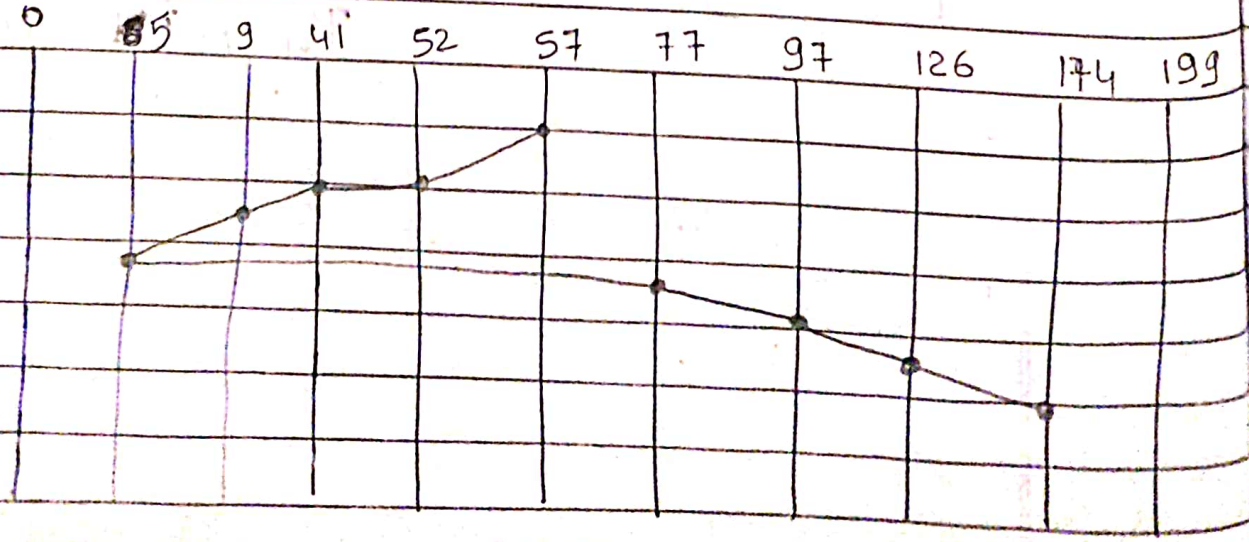


Seek time = (57-52) + (52-41) + (126-41) + (174-126) + (174-77) + (77-5) + (97-5) + (97-9)

= 5 + 11 + 85 + 48 + 97 + 72 + 92 + 88

= 498

(ii) SSTF



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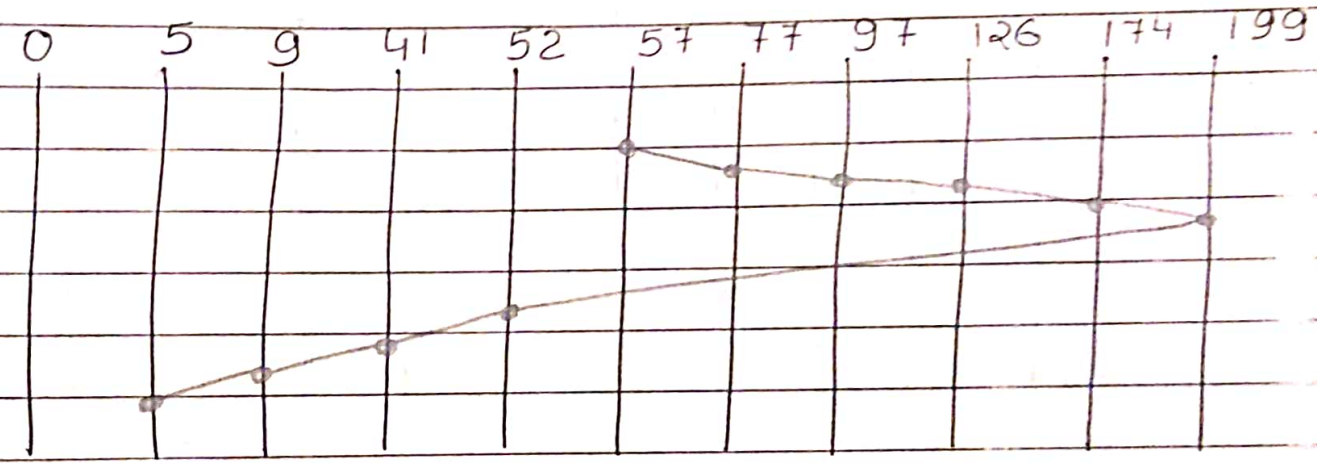
SEEK TIME = 5 + 11 + 32 + 4 + 72 + 20 + 29 + 48

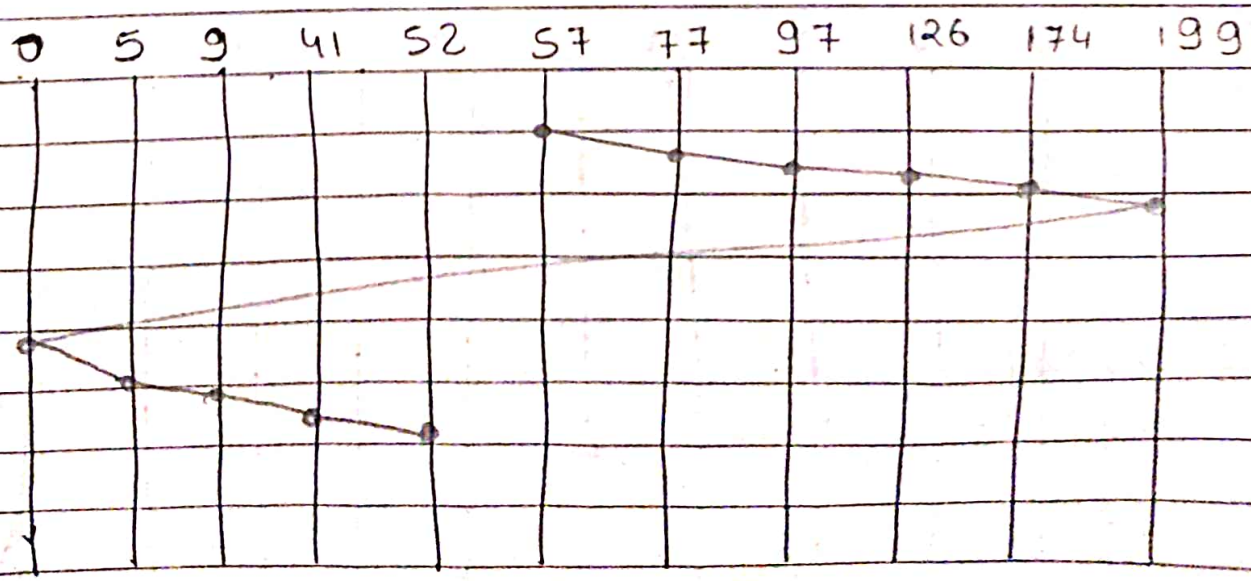
= **221**

(III) SCAN



SEEK TIME = 20 + 20 + 29 + 48 + 25 + 147 + 11 + 4 + 32 = **336**

(IV) CSCAN



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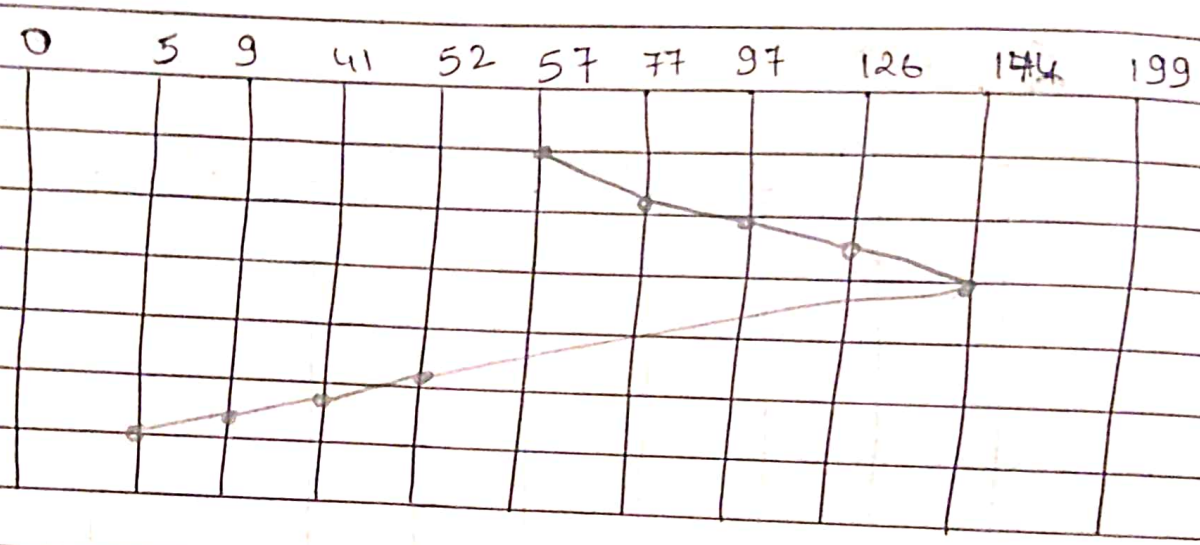
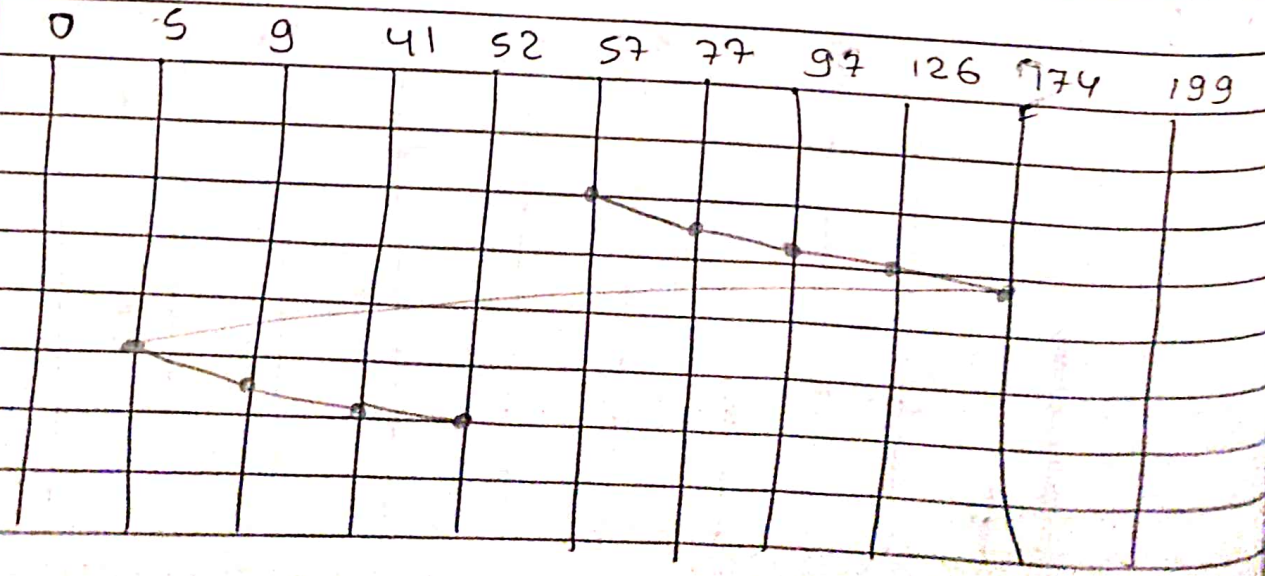
SEEK TIME = 20+20+29+48+25+199+
+5+4+32+11
= 393

(V) LOOK



SEEK TIME = 20+20+29+48+122+11+32+4
= 286

(VI) CLOOK



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SEEK TIME :- 20 + 20 + 29 + 48 + 169
+ 4 + 32 + 11
= 333