Name :- Purval Madhukar Bhude

Roll no. 520230010193

Assignment OS

Q1.

Pid	B_T	C_T	T_{AT}	W_T
1	10	10	10	0
2	5	15	15	10
3	20	35	35	15
4	8	43	43	35
5	15	58	58	43

First come - First serve
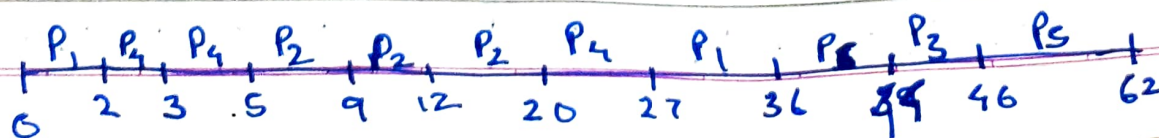
$$Avg. \ T_{AT} = \frac{10+15+35+43+58}{5} = 32.2$$

$$Avg. \ T_{AT} = \frac{0+10+15+35+43}{5} = 20.6$$

Q2. In 5, 9, 12, 18 is the order in which we can expect less waiting time. (shortest Job first)

Q3

Pid	Priority	A_T	B_T	C_T	T_{AT}	W_T
1	2	0	~~11 9~~	36	36	25
2	0	5	~~15~~ 0	20	15	0
3	3	12	~~2~~	46	34	32
4	1	2	~~10~~ 7	27	25	15
5	4	9	16	62	53	37
6	2	3	8	44	41	33

Priority.

(0 is high priority

```
  P₁        P₂
|----+----|----+
0    5    12
```

```
 P₁, P₃, P₄, P₂, P₂, P₂,  P₄,    P₁,   P₅, P₃, P₅
|--+--+--+--+--+--+----+------+----+--+----+
5  2  3 .5  9  12   20    27   36  44 46    62
```

Avg. waiting time = $\dfrac{25+0+32+15+37+33}{6}$ = 23.67

Q4.

Pid	A_T	B_T	C_T	T_{AT}	W_T
P_1	0	~~10~~ 7	20	20	10
P_2	3	~~6~~ 2	10	7	1
P_3	7	X	8	1	0
P_4	8	3	13	5	2

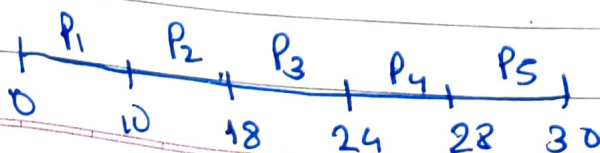| P_1	P_2	P_3	P_2	P_4	P_1
0	3	7	8	10	13 20
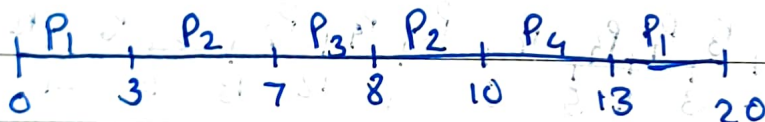
Avg. waiting time = $\dfrac{10+1+0+2}{4}$ = $\dfrac{13}{4}$ = 3.25 ms.

Avg. T_{AT} = $\dfrac{20+7+1+5}{4}$ = $\dfrac{23}{4}$ = 5.75 ms.

Q5.

Pid	A_T	B_T	C_T	T_{AT}
1	0	10	10	10
2	1	8	18	17
3	2	6	24	22
4	3	4	28	28
5	4	2	30	26

First come
first serve
(FCFS)

P_1	P_2	P_3	P_4	P_5
0	10	18	24	28 30

Avg. T_{AT}
= 20.6

Pid	AT	BT	CT	TAT
1	0	~~10~~ 9	30	30
2	1	~~8~~ 7	21	20
3	2	~~6~~ 5	14	12
4	3	~~4~~ 3	9	6
5	4	2	6	2

SRJF (Premitive)
~~Non premitive~~
SJF.

```
 P1 | P2 | P3 |  P4 | P5 |  P4 |  P3 |  P2 |  P1 |
 0    1    2     3    4     6     9    14    21    30
```
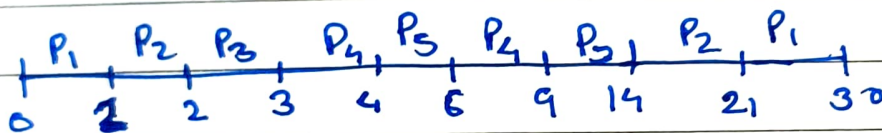
Avg. TAT
= 14

Pid	AT	BT	CT	TAT
1	0	~~10~~	10	10
2	1	8	30	29
3	2	6	22	20
4	3	4	16	13
5	4	2	12	8

~~SRJF~~
Non-Premitive (SJF)

```
 P1  |  P5  |  P4  |  P3  |  P2   .
 0     10     12     16     22      30
```

Avg. TAT
= 16

Round Robin
TQ = 2

Pid	A_T	B_T	C_T	T_{AT}
1	0	10 6 4 8		
2	1	8 4		
3	2	6 4 2		
4	3	4 2		
5	4	2		

P_1	P_2	P_3	P_1	P_3	P_4	P_2	P_3	P_1	P_3	P_4
0	2	4	6	8	10	12	14	16	18	20 22
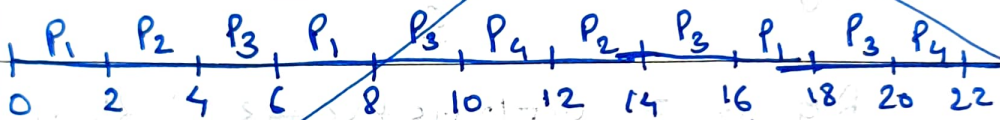
P_1 P_2 P_3 P_1 P_3 P_4 P_2 P_3 P_1 P_3 P_4 P_2 P_1

Round Robin
TQ = 2

Pid	A_T	B_T	C_T	T_{AT}
1	0	10 8	30	30
2	1	8 6	28	27
3	2	6	24	22
4	3	4	20	17
5	4	2	12	8

P_1	P_2	P_3	P_1	P_4	P_5	P_2	P_3	P_1	P_4	P_2	P_3	P_1	P_2	P_1
0	2	4	6	8	10	12	14	16	18	20	22	24	26 28	30
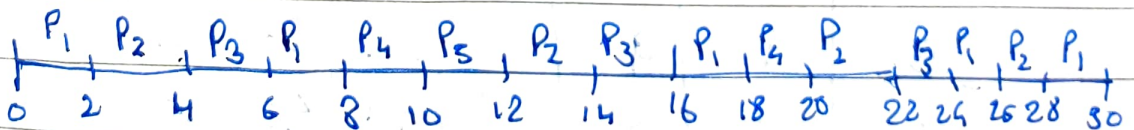
P_1 P_2 P_3 P_4 P_5 P_1

P_1 P_2 P_3 P_1 P_4 P_5 P_2 P_3 P_1 P_4 P_2 P_3 P_1 P_2 P_1

Q6

Pid	A_T	B_T
1	0	10
2	2	20
3	6	30

P₁	P₄	P₁	P₂	P₃	
0	2	6	10	30	60
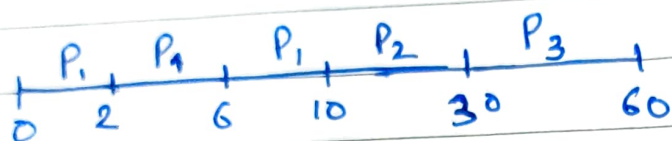
∴ **4 context switch happens.**

Q7

Pid	A_T	B_T
1	0	10~~9~~
2	t	7
3	5	3

minimum t would be ~~8~~ 2.

P₁   P₃   P₁   P₂
0   5   8   13   20

I₁   P₂   P₂
0   2   3   4

P₁	P₂	P₃	P₂	P₁	
0	2	5	8	12	20