

$$\frac{\Delta N}{N_1} = \frac{1.6 \times 10^{18}}{10^{19}} = 0.16$$

$$N_1 - N_2 =$$

$$N_2 - N_1 = 0.016 \times 10^{19}$$

$$N_2 + N_1 = 10^{19}$$

$$2N_2 = 1.16 \times 10^{19}$$

$$N_2 = 0.58 \times 10^{19}$$

$$\frac{N_2}{N} = \frac{0.58 \times 10^{19}}{10^{19}} = 0.58 = 58\%$$

Tut-3 OS

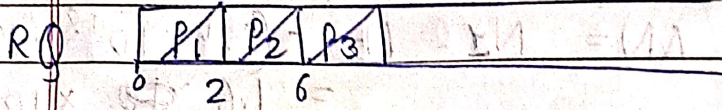
Q.3) Round Robin \therefore TQ allows all processes to share and hold resources for limited time preventing starvation.

Q.4) n tasks $\rightarrow \tau_1, \tau_2, \dots, \tau_n$ max^m throughput
throughput \Rightarrow max^m tasks completed
 \therefore S J F \therefore resources with lesser runtime executed first allowing max^m tasks to execute

Q.5)

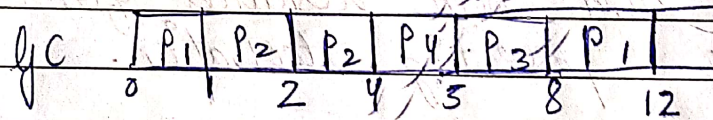
Q.5) Process BT AT

C	P ₁	P ₁	P ₁	P ₂	P ₃
	0	2	6	10	30
					60



	Pid	AT	BT	CT	TAT
1	P ₁	0	84.0	12	12
2	P ₂	1	82.0	4	3
3	P ₃	2	80	8	6
4	P ₄	4.0	80	5	1

RG | P₁ | P₂ | P₃ | P₄ |

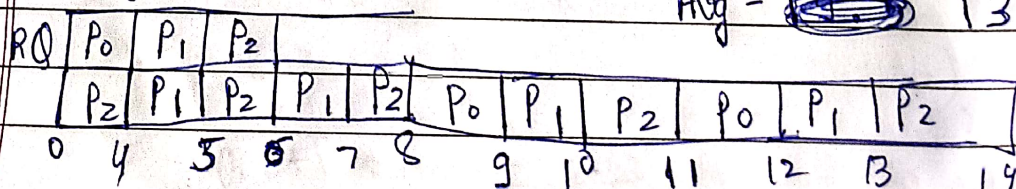


$$TAT_{avg} = \frac{12+3+6+1}{4} = \frac{22}{4} = \frac{11}{2} = 5.5$$

LRTF

Q.7) Pid	BT	AT	CT	TAT
P0	X X ⁰	0	12	12
P1	X X X ⁰	0	13	13
P2	X X X 0	0	14	14

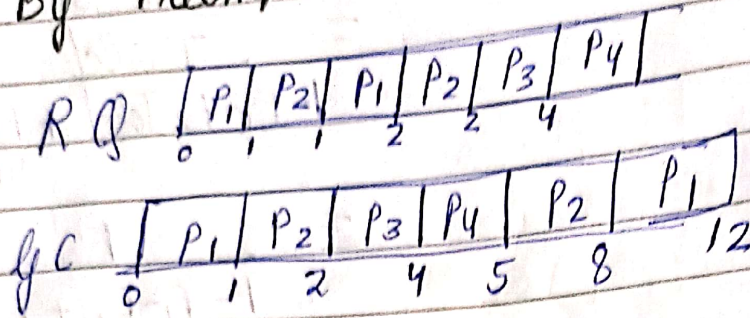
$$\text{Avg} = \frac{19.5}{13}$$



PId	Priority	H1	54	12	7	3	1-1 0
P1	10	0	43	8	2	0	2-2 0
P2	20	1	20	4	1	0	4-4 0
P3	30	2	10	5			
P4	40	4					

By Preemptive -

ALWAYS RT=0

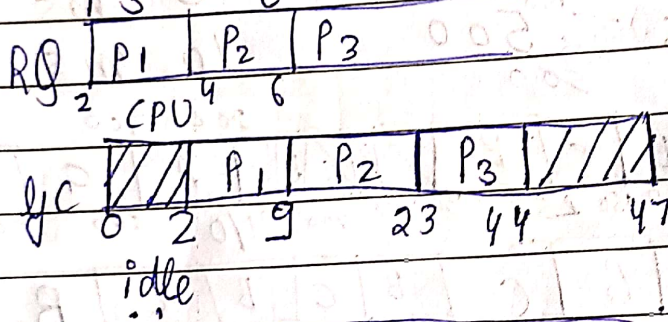


$\therefore P2, P2 > P1$
 $\therefore P2$ gets CPU

Q) Whatsapp

PId	AT	T.BT	I/O	BT	I/O
P1	0	10	2	70%	10%
P2	0	20	4	140	2
P3	0	30	6	210	3

SRT preemptive



$$\% Idle = \frac{2+3}{47} \times 100$$

$$\% Idle = 10.6\%$$

