Que	1-4-0-			Engelia.
343.9	Process	A·T	B.T	
	Pt	o	5	
	P2		9	
	P3	2	7	
	Py	3	2	
	Ps_	4	4	
•		W/ 100		
1)	FCFS (first con	ce first se	ue)	•
	( Now Prevent	ice):-		
	1	F 11	1	7 · 1:
	P1 P2 P3 P4	Ps		
Ċ	5 14 21 23	27		
		3 2		(3) 9
T.A.	T = C.T - A.T W	T = T.A.	T - B.T	Normalized FAT = FA.T/B.T
	34		•//	
Pi =	5-0=5 P1=	> 5-5 =	0	P1 => 5/5 = 1
P2 =)	14-1=13 P2=	13-9=	4	P2 => 13/9 = 1.44
		) 19-7=		P3 =) -19/7 = 2.71
Py=	23-2 = 20 Py =	20-2	= 18	Py=) 20/2 = 10
		23-4	=19	P5 = 23/4 = 5.75
I)	Average T.A.I	= 5+1	3 + 19 + 2	20+23 = 16
	J		5	
工)	Average Dit. =	= 0+4	+12+18	+19 = 10.6
	J		5	
ш)	Average Normali	zed T.A.T	= :  +	1.44 + 2.71 + 10 +5.75

Y	Given
	1 Pallen (Time Quantam=5)
= <u>ii)</u>	Round Robbin Clime quantum
	Descript A. T Princity
	PSIOCENS
	1 3
]	P2 2015 P3 80 2 2 P, P2 P3 P4
	P4 819 3 5
	Pr IX 4 4
-	13
-	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
RG	:- PIPE P3 P4 P5 PN PE P4 P5 PE P5 P2
	10 0 0 0 0 0 0
Gantl	chard: P1   P2   P3   P4   P5   P1   P2   P4   P5   P2
	0 5 10 13 18 23 26 31 32 37 92 47
	T- C.T- A.T   W.T = T.A.I - B.T   Normalized T.A.I = TAT/8T
T. A.	T = C.T - A.T W.T = T.A.I -B.T. Normalized T.A.I = IAI/BI
	26/8 = 3.25
P, =)	$26 - 0 = 26   P_1 = ) 26 - 8 = 18   11 = ) 12 / 12 / 12 / 12 / 12 / 12 / 12 / 12$
P2 =>	199 - 1 = 48 12= 40= = 0 P 11/2 - 2.64
P3 =	13-2=11 13-3 - 11-3- 0 29/6 = 4.83
Py >	32 - 3 = 29 $14 = 3$ $49 - 6 = (3)$ $49 - 6 = (3)$
P5-3	44-4=40 Ps => 40-12=28 Ps => 40/12 = 3133
- i)	Average TAT = 26+48+11+29+40 = 30.8
-	Average $7AT = 26+48+11+29+40 = 30.8$
ii)	Avorage WT = 18 + 28 + 8 + 23 + 28 = 21
	1 1 1 1 5 5 5 S
	The state of the s
iiiy	Arrage Normalized TAT = 3.25+2.4+3.66+4.83+3.33
	= 3.49

 $P_{1}P_{2}P_{3}P_{4}$ Gard chard:  $P_{4} P_{2} P_{1} P_{3}$   $P_{4} P_{2} P_{1} P_{3}$   $P_{5} P_{1} P_{2} P_{1} P_{3}$   $P_{7} P_{1} P_{2} P_{1} P_{3}$   $P_{8} P_{1} P_{2} P_{1} P_{3}$   $P_{1} P_{2} P_{1} P_{3} P_{3}$   $P_{2} P_{3} P_{1} P_{3} P_{3}$   $P_{3} P_{4} P_{2} P_{1} P_{3} P_{3}$   $P_{1} P_{2} P_{3} P_{4} P_{5} P_{5}$   $P_{1} P_{2} P_{3} P_{4} P_{5}$   $P_{2} P_{3} P_{4} P_{5} P_{5}$   $P_{3} P_{4} P_{5} P_{5}$   $P_{1} P_{2} P_{3} P_{4}$   $P_{2} P_{3} P_{5}$   $P_{3} P_{5} P_{5}$   $P_{4} P_{5} P_{5} P_{5}$   $P_{5} P_{5}$   $P_{5} P_{5} P_{5}$   $P_{5} P_{5} P_{5}$   $P_{5} P_{5}$   $P_{5} P_{5} P_{5}$ 

			71-1
	TOANT = COT-ANT	W.T = T. A.T-B.T	Normal. TAT = TAT/B.T.
P1 =)	13-0 = 13	P1= 13-9=4	P <sub>1=0</sub> 13/9 = 1.44
P2 =)	5-1=4	P2=) 4-3=1	$\rho_{2} = \frac{9/3}{26/14} = 1.85$
P3 =)	27-1 = 26	P3=> 26-14=12	1/4 - 1
Py =)	2-1 -1	Py=> 1-1=0	Py => -/1 - 1
	-		

I) Average TAT => 13 +4 +26 +1 = 11

SRN (with Precemptive):-

B.T

1

ii)

PSICLESS A.T

PI

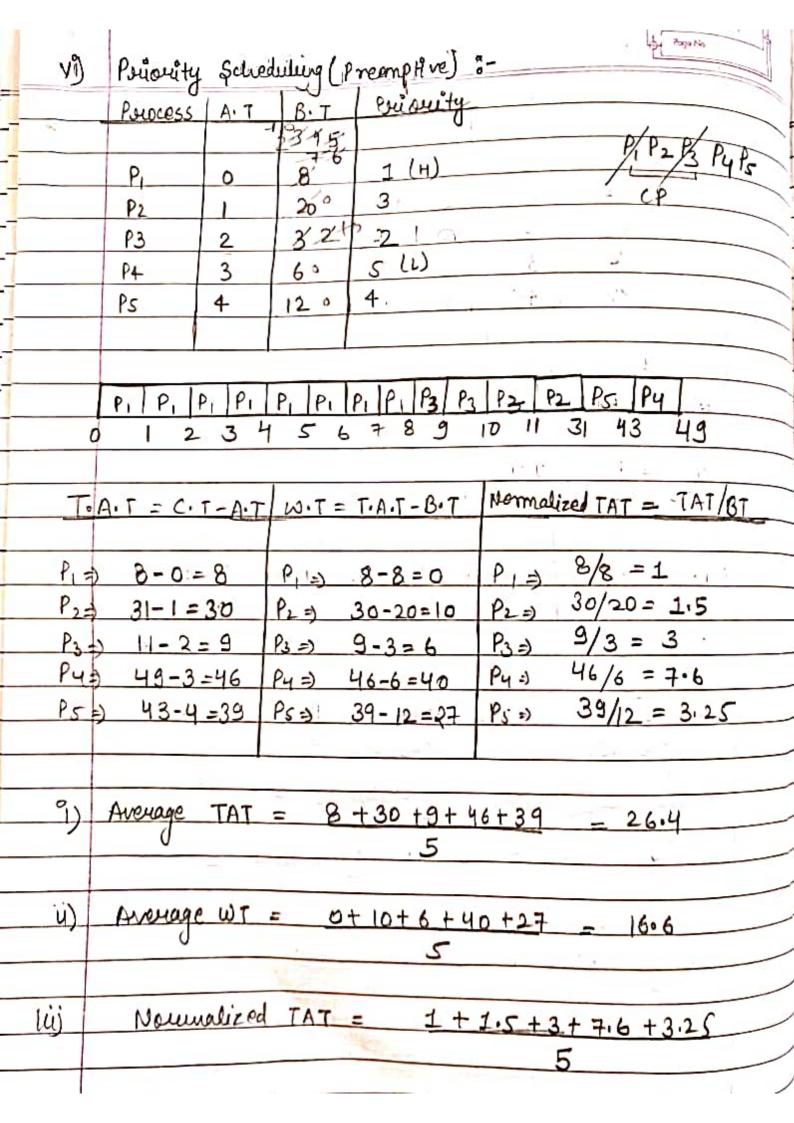
P2

P3

P4

I) Average W.T > 4+1+12+0 = 4.25

III) Average Normalized > 1.44+1.33+1.85+1 = 1.40
TA.T



		9.4	. alia	0_		الموسمة المجا	,
iv)_		ith pres	INDIVE	Psiouity	t.e.	11 5	-
	Psiocess	A.T	B.T	130000			
	0		08	1	200	100	
	P,	0	BA		112/	3/4/5	
	P <sub>2</sub>	2	20	3			
	P3 P4		32 60	5			
	20	3		4			
	P5	4	12				
	P. 10	1 P3 P3	IP.I	P4 P5 P2			
	0 1	2 3	5 11	17 29	49		
	7:		7 10				
	T. A. T - C	I - A - T.	υλ.T.	T.A.T-B.T	Nighter	alized TAT =	TATT
				- 1711-12-0-1		ALCO INT	101
P	=) 11-0	) =	P, =>	11-8=3	P. =)	11/8 =	1.37
		=48		48-20= 28		48/20 =	2.4
	P3=) 5-		1	3-3 = 0	P3 =)	3/3 =	- 1
	4=) 17-			14-6 = 8	Pu =		2.33
	Ps => 29.			25-12 = 13		25/12 =	2.08
				- P1			
الم	Averag	e T.A.	T = -	11+48+3+1	1+25	20:2	
	0			5		10 1	
<u>- (il</u>	Виснад	e wit	= 3	+ 28 +0 + 8	t13 _	10.4	
<del></del>	-		File	5			
2215	Avorage Noum	1 2	100	-	4		
<u>(iii)</u>	Noun	alized IF	17 -	1.37 + 2.	4+1+2.3	3+2.08	1.83
		4	1)	-03200	5		
-	101		14.5				
	-						

				Drave / / Draya No.
Ques	6 8-			
	Process	Anrival Time	Brust Time	
	Pı	0	_9	
	P2	1	3	
	Рз	1	14	
	P4-	1	1	
i)		outest Process	Next)	
	(Non-Pa	cemptive)		
Gauth	chart	, 		
	P1 P4	P2 P3	27	
	0 3	[0 [3	41	
140				Normalized T.A.T = T.AT/BT
T- A	T = C.T-A.	T W.T =	T.A.T - B.T	Normalized (11) = 11/81
D.	=) 9-0=9	0 ->	9-9=0	P1 = 9/9 = 1
		-0	2-3=9	land to
P2 P3			26-14=12	- 11
ī			9-1 = 8	$P_3 \Rightarrow \frac{26}{14} = 1.85$ $P_{+} \Rightarrow \frac{9}{1} = 9$
Pu	F) 10-1-	1193	A	
· ·			-	1 (6
I	) Avoyage	T.A.T =>	9+12+26	10 11
			4	+9 _ 14
I)	Average	WT =)	0+9+12+8	3 = 7.0=
-			4	3 = 7.25
	) Avruage	Normaliz	ed 1	+4+1.85+9 = 3.96
	-170	Noumaliz T.A.T	7	4 = 3.96

V)	Parault. C.	Date / /
	Priority Sched	wling (Non-Psecemptive) :-
	0	(1 mean highest
+	Puocess A.T	B. T   Priority Priority)
1	Pi	8 I (H) Gard word
+	P2 1	20 3
-	P <sub>3</sub> 2	3 2 -> P1 P3 P2 P5 P4
+	P4 3	6 5(L) 08 11 31 43 49
	P5 4	12 4
		707/0-
T. A.	I = C.T-A.T	W.T = T.A.T-B.T Normalized TA I = TAT/BT
	W.	0/-
P <sub>1</sub> =)	-	$P_{1}=)$ $8-8=0$ $P_{1}=)$ $8/8=1$
P2=)	31-1 = 30	$P_{2} = 30 - 20 = 10$ $P_{2} = 30/20 = 1.5$
P3 =)	11-2 = 9	$P_{3} = 9 - 3 = 6$ $P_{3} = 9/3 = 3$
P4 =)	49-3 = 46	P4 => 46-6 = 40 P4 => 46/6 = 81
Ps =)	43-4 = 39	PS 39-12=27 Ps-=> 39/12 = 3.25
	-2	
	Tom I Tom	7- 719-7, 6-7
1)	Average T.A.T	5 8+30+9+46+39 = 26.4
	J	5
iu)	N.MILAND WOT	T = 0 + 10 + 6 + 40 + 27 = 16.6
<b>"</b>	HVery	5
		700
• • •	Average No	our alized = $1+1.5+3+7.6+3.25$
iuj	Average IVA	5
	V TAT	
		= 3.21

A	-11			Dow / /
que	DANY: PSIOCON	A·T	10 -	
	2500	4. (	B.T	
	Pı	0	9	
	P2_	1	1	
1	P3	2	7	
	P4	3	1	1
	Ps	4	6	
(1	FCFS (First come	first se	ure)	
	Nou- Precupic	e!-		4+ - 1 2 + 1/2 - 1
			3-1 E	
2		4 PS 2		
	0 9 10 17	18 2	1	
	8_* 3	2 2		Normalized T.A.T = TA.T/8.T
	T.A.T = C.T. A.	T W.	[ = T.A.T-B.T	1401 11000000 (44.1 = 44.1/84
=	0. 0. 0	D 3	9-9=0	P1 => 3/g = 1
P(=)	9-0=9		9-1=8	P2 => 9/1 = 9
<u> </u>			15-7=8	P2 = 1577 = 2.14
P3=	17-2=15	D	15-1=16	Py = 15/1 = 15
P4=)			20-6=14	1 - 7.66
P5=				
1	Average T.A.T	4	9+9+15+15+	20 13.6
1	Average 1.H.1		S	
				4.2
		=)	0+8+8+16+	14 = 312
	Average W. T		5	
				_
	Manage Normali	-ool To	A:T => 1+9-	<u> </u>
	Mounoe _ Normali	7.00		

				A rise
tlür	SRJF	( with	precuptive	) 8-
-6.5/			7.00	

ruceu	A·1	B. 1
Pı	0	5
P2	1	9
P2 P3	2_	7
Py	3	2
P4 P5	4	4

T• A•	T = C.T- B.T	W.T = T.A.T-B.T	Normalized T.A.T = T.AT/B.T
P1 =)	5-0=5	Pi= 5-5=0	P1 => 5/5 =1
		P2=) 26-9=17	P2 => 26/9 = 2.88
P3 =)	18-2=16	B=) 16-7=9	P3 => 16/7 = 2.28
	7-3=4	Py= 4-2=2	Pr=> 4/2 = 2 Pr=> 7/4=1.75
P5=)	11-4 = +	Ps => 7-4=3	15 7 7/ (-1/5

II) Average 
$$\omega \cdot T = 0 + 17 + 9 + 2 + 3 = 6.2$$

P(=) 16-4=12 P(==) 12-6=6 P(==)

Average T.AT = 24+1+8+1+12=9.2Average W.T = 15+0+1+0+6=4.4Average Normalized = 2.66+1+1.14+1+2=1.56T.AT 5

lij sterior	
with non-ome office a	
P	
P <sub>2</sub>	_
P3 2 7	_
P4 3 1	
Ps 4 6	_
Ganti chart	
P1 P2 P4 P5 P3	
0 9 10 11 17 24	
To A.T = C.T-A.T W.T = T.A.T-B.T Normalized TAT = TAT/BT	_
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
$P_1 = 9 - 0 = 9$ $P_1 = 9 - 9 = 0$ $P_1 = 9/9 = 1$	-
$P2 = 10 - 1 = 9$ $P_2 = 9 - 1 = 8$ $P_2 = 9/1 = 9$	Ī
P3= 24-2=22 P3= 22-7=15 P3= 22/7 = 314	
Pu => 11-3=8   Pu => 8-1=7   Pu => 8/1 = 8	
P5 => 17-4=13 P5=> 13-6=7 P5=> 13/6 = 2/16	
** * * * * * * * * * * * * * * * * * *	
Average T. A.T => 9+9+22+8+13 = 12.2	
5	_
Average W·T => 0+8+15+7+7 = 7.4	_
5	
Average Normalized > 1+9+3.14+8+2.16 = 4.66	_
TAT 5	_
IAI	_
AND A	

**)** - |

	Qu	el 5:-				
					Cate / /	
	-	Parocess	BT	AT	Privaty	
		Pı				28
		P2	8	0	o 1 mea	t priority
/		P3	3	1	5	0
/		P4-	16	2	2 o Time Qu	cantam=5
/ /		P5	12	3	5	
	-0,-				4	
	1). +	CFS (No				2
			P1 P2 8 2	P3 Pa	1 Ps	
	404	0				
1	T. A.T	= CoT-A	T (W.T :	= T.A.T-	B.T Normalized T.A.T = TAT/BT	Γ
19		0		1 1	0/	-
17	P <sub>1</sub> =)	8-0=		8-8 =		
	P2=)	28-1=2		27-20		
		31-2=3	(J P3 =)	29-3	$=26$ $P_3 = ) 29/3 = 9.66$	
	Py =)	37-3=3	y Pu=	34-6	$=28$ $P_{y} = 34/6 = 5.66$	
	15=)	49-4 =1	15 PS =	45-12	=33 P5=> 45/12 = 3175	
-						
-	1.	A	T. A.T =	8+	27+29+94+45 = 28.6	
+	1)	Average	LIAN		5	
-						
-	i)	Average	WT =	Ot:	7 + 26 + 28 + 33 = 32.8	
1	<u>u)</u>	HVVIII			5	
						C
$\uparrow$	(in)	DIONO	e Norma	alized	1+1.35+9.66+5.86+3.7	7
$\uparrow$	- (m)	J	TAT		J	
		11-5			- 4.29	

2 :- SRN (Shoutest Remaining Next) Edveduling not be used directly in practices because it require acculate estimate of the runtime(si) of each process.

Onte / / Progretion

tiit	STO			
(11)	OIF with	non-presmotting	andu and	0. sml :-
		non-preemptive	Themes Co	thongs.

		1	
Priocess	AT	ВТ	Prioxity
Pı	0	2	J
P2	1-	20	3
P3	2	3.	2 => P1 P3 P4 P5 P2
_P4	3	6	5 08 11 17 29 49
P5	4	12	4
	7		1 1

1					
	T. A.T = C.T-A.T	W.T -	T.A.T-B.T	Normaliza	DI TAT = TAT/BT
				×	
P	=) 8-0 = 8	P1 =)	8-8=0	P1 =)	8/8 = 1
	-> 49-1 = 48	P2 =)	48-20=28	Pa =1	48/20 = 2.4
_r		N.	9-3=6	P2 =)	9/3 = 3
P:	= 11 = = =	13 =)	14-6-8	Pu =)	14/6 = 2.33
Pi	=) 17-3 = 14	14=		0)	25/12 = 2.08
P	- 3 29-4 = 25	P5 =	25-12=13	15	
		-	2 (236)	7	
	-		<u> </u>		0

Digital	1	1	1
-			-
Page	746		

iv)	SJF	(with	non-	preem	ptive):-

PHOCESS	A.T	BIT
Pi	0	5
P2		9
P3	2	7
Py	3	2
P5	4	4
	P <sub>3</sub>	P <sub>1</sub> 0 P <sub>2</sub> 1 P <sub>3</sub> 2

TO A.T = COT-A.T	W.T = T.A.T-B.T	Normali TAT = TAT BT
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$P_{1} \Rightarrow 5-5=0$ $P_{2} \Rightarrow 36-9=17$ $P_{3} = 16-7=9$ $P_{4} \Rightarrow 4-2=2$ $P_{5} \Rightarrow 7-4=3$	$P_{1} = \frac{5}{5} = 1$ $P_{2} = \frac{26}{9} = 2.88$ $P_{3} = \frac{16}{7} = 2.28$ $P_{4} = \frac{4}{2} = 2$ $P_{5} = \frac{7}{4} = 1.75$

II) Average 
$$\omega \cdot T = 0 + 17 + 9 + 2 + 3 = 6 \cdot 2$$

7).			4	Page No.
îi)	Rouerd Robbia	n:-		
				1
_	POLOCESS A. T	B. T	P	
-	PIO	9		
-	P2 1	1		
-	Pu 3	7		
_		6		
_	PS 4	0		
Read	. Ougue o- P.	P2 P3 P1 P4 P5	P2/0/ 0/ 0/ 0/	PS PS PS
	of frene or 1/11	1721/31/11/91/3	11314 18 18 14	rs miri
Ganti c	raut: Pi P2	P3   P1   P4   P5   P3	P1 P5 P3 P1 P3	r P3 P1
	0 2 3		12 14 16 18 20	22 23 24
E p		ad .	T	
T. A.	T= COT - AOT U	O.T = T.A.T-B.T	Normalized T.A. T = T	AT/BT
_ P <sub>1</sub> =)	24-0=24 /	=) 24-9=15	P, = 24/9 =	2.66
P2 =)	$3 - 1 = 2$ $P_2$	=) 2-1=1	$P_{2} \Rightarrow \frac{2}{1} = \frac{1}{2}$	
P3 =)	23-7 = 16 P3	=) 16-7=9	P3 = 16/7 = 2	
_		=) 5-1=4	Py = 5/1 =	
-P6=)	22-4=18 Ps	=) 18-6=12	Ps =) 18/6 =	3
-				
	A	20142 +14 + C+	19 - 12	- 1
	Hverage IA-1 -	24+2+16+5+	10 = 15	1
	4			1
II)	Average W.T	= 15+1+9+4	+12 - 3.2	
11)	HVE	5		
	,1 m	San Control		
皿)	Aveuage Nom	salized 13 2.66	+ 2 + 2·28+5+3	_ 3.10
	T. A.T		5	