Assignment for Today's Class

Solve this Problem

For the processes listed in the table, calculate the average turn around time and average waiting time, for FCFS,RR (quantum=2), SJF and SRTF.

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Process	Arrival Time	Burst Time
P1	0	3
P2	2	6
P3	4	4
P4	6	2

i) Aging is associated with

a) Starvation b) Deadlock

c) Scheduling d) Paging

ii) Kernel is the

a) Not a part of the O.S. b) Inner most layer of the O.S.

c) Middle layer of the O.S. d) Outer most part of the O.S.

iii) Which of the following is not true for a time sharing operating sytem?

a) The objective is to maximize processor tilization

b) The processor time is shared among a number of running processes

c) Require a hardware timer to interrupt the processor periodically

d) None of the above

iv) Which of the following is true for a system call?

a) It is used to request service from the OS

b) Automatically sets the processor mode to “supervisor”
c) It is a software instruction that is executed by a user program
d) All of the above

Name → Akash Kinkar Pandey
Dept → CSE, Roll → 49,

OS

MCQs

i) a) Starvation

ii) b) Inner most layer of the OS

iii) d) None of above

iv) d) All of above

Process Table :-

Process	Arrival Time	Burst Time
P_1	0	3
P_2	2	6
P_3	4	4
P_4	6	2

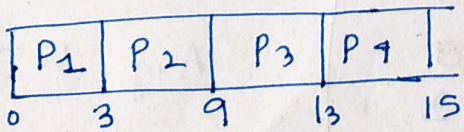
FCFS

P	Arrival Time AT	Burst Time BT	Completion Time CT	Turnaround Time TAT	Waiting Time WT
P_1	0	3	3	3	0
P_2	2	6	9	7	1
P_3	4	4	13	9	5
P_4	6	2	15	9	7

Avg TAT = $\frac{3+7+9+9}{4} = 7$

Avg WT = $\frac{13}{4} = 3.25$

Gantt Chart



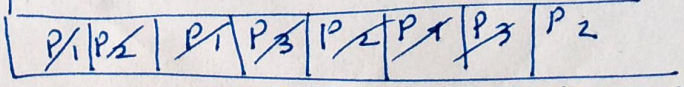
Process Table

P	AT	BT	CT	TAT	WT
P_1	0	3	5	5	2
P_2	2	6	15	13	7
P_3	4	4	13	9	5
P_4	6	2	11	5	3

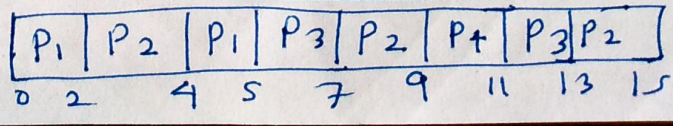
Avg TAT = $\frac{5+13+9+5}{4}$ = 8 units

Avg WT = $\frac{2+7+5+3}{4}$ = 4.25 units

Ready Queue

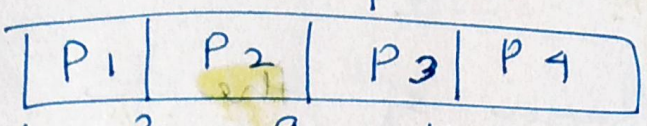


Running Queue



III Shortest Job First SJF

- Non Pre emptive



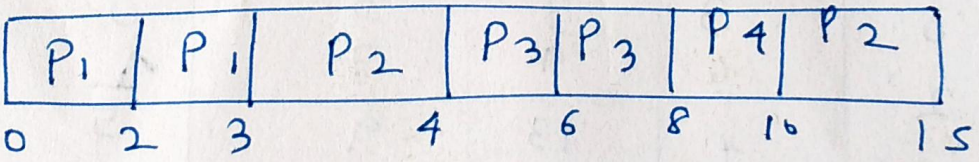
Proces	Arrival Time	Burst Time	Completion Time	Turnaround Time	Waiting Time
P_1	0	3	3	3	0
P_2	2	6	9	7	1
P_3	4	4	11	11	7
P_4	6	2	15	5	3

Avg TAT = (3+7+11+5)/4 = 6.5, Avg WT = (0+1+7+3)/4 = 2.75 units

Shortest Remaining Time First (SRTF)

- We use pre emptive

Gantt chart :-



Pa	TAT	WT
P_1	3	0
P_2	13	7
P_3	4	0
P_4	4	2

$$\text{Avg TAT} = \frac{(3+13+4+4)}{4} = 6$$

$$\text{Avg WT} = \frac{(0+7+0+2)}{4} = 2.25 \text{ units}$$