CS & IT ENGINEERING

Operating System

CPU Scheduling

DPP 05 Discussion Notes

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01 Question

02 Discussion

Q.1

[NAT]

Consider the following table

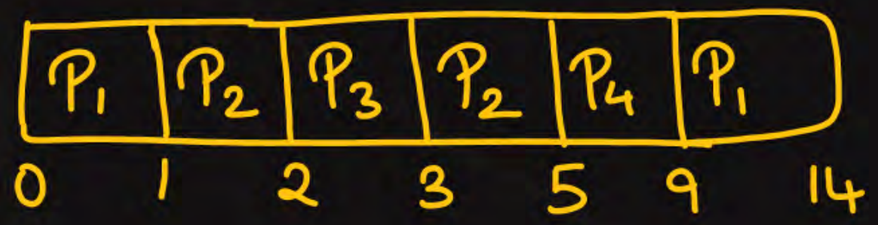
Process	P1	P2	P3	P4
Arrival Time	0	1	2	3
Service Time	6	3	1	4

Find the average turn around time when processes are scheduled with SRTF. (Upto 2 decimal point)

Processes	A.T	B.T	C.T	T.A.T
P_1	0	~~6~~ 5	14	14
P_2	1	~~3~~ 2 0	5	4
P_3	2	~~1~~ 0	3	1
P_4	3	~~4~~ 0	9	6

Avg T.A.T $\Rightarrow \frac{14+4+1+6}{4}$

$\frac{25}{4} \Rightarrow$ 6.25 units


P1
P2
P3
P2
P4
P1
0
1
2
3
5
9
14

Q.2

[MCQ]

Consider the following statements:

(i) If all jobs arrive at the same point in time, a SJF and an SRTF scheduler will behave the same.

(ii) If all jobs arrive at the same point in time and have identical run lengths, a FIFO and a SJF scheduler will behave the same.

Which of the following statements is true?

A. Only (i) is true.

B. Only (ii) is true.

C. Both (i) and (ii) are true.

D. Both (i) and (ii) are false.

Q.3

Consider the following process table with Arrival and Burst time

[MCQ]

Process	Arrival Time	Burst Time
P1	1	2
P2	6	4
P3	4	10
P4	5	6

Average waiting time of these processes by using round robin scheduling, where time quantum is 2 unit.

A. 2.25

B. 6.25

C. 4.25

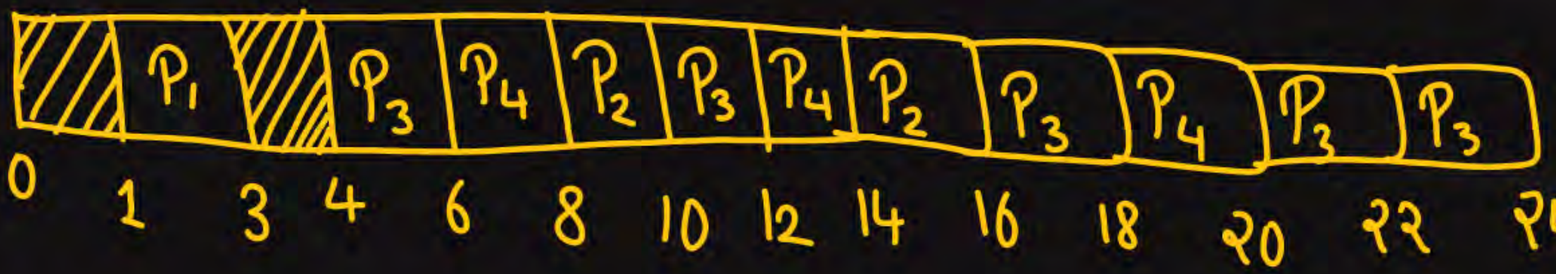
D. 8.25

T.Q = 2

Processes	A.T	B.T	C.T	T.A.T	W.T
P_1	1	2	3	2	0
P_2	6	~~4~~ ~~2~~ 0	16	10	6
P_3	4	0 ~~10~~ ~~8~~ ~~7~~ ~~4~~ ~~6~~	24	20	10
P_4	5	0 ~~6~~ ~~4~~ ~~2~~	20	15	9

Avg. W.T ⇒

$$\frac{6+10+9}{4} \Rightarrow \frac{25}{4}$$



$\Rightarrow 6.25$

Q.4

Which of the following scheduling algorithm is better than others in forms of response time.

[MCQ]

A. SJF (Shortest job first)

B. SRTF (Shortest remaining time first)

C. FCFS (First come first serve)

D. RR (Round Robin)

Q.5

Consider the 3 processes, P1, P2 and P3 shown in the table:

[MCQ]

Process	Arrival Time	Burst Time
P1	0	5
P2	4	7
P3	6	4

The completion order of the 3 processes under the policies FCFS and RR2 (round robin scheduling with CPU quantum of 2-time units) are ?

A. FCFS: P1, P2, P3; RR2: P1, P2, P3

B. FCFS: P1, P3, P2; RR2: P1, P3, P2

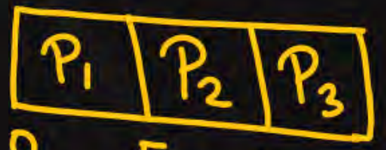
C. FCFS: P1, P2, P3; RR2: P1, P3, P2

D. FCFS: P1, P3, P2; RR2: P1, P2, P3

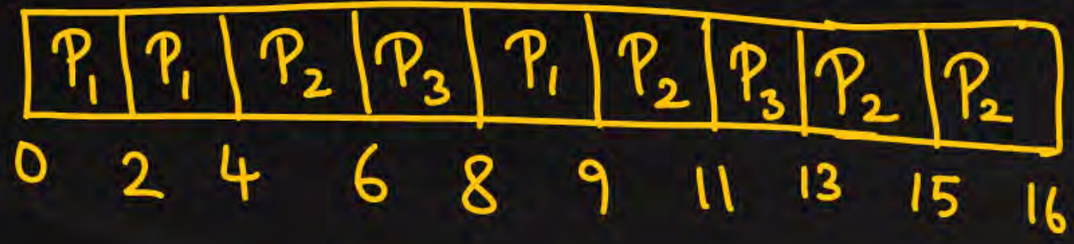
Process	A.T	B.T	C.T
P_1	0	0 5 ~~3~~ 3	5
P_2	4	~~3~~ ~~7~~ 0 ~~3~~	12
P_3	6	~~4~~ 2 0 4	16

FCFS

FCFS:



$P_1\ P_2\ P_3$



$P_1\ P_3\ P_2$

Q.6

Suppose a system has 5 processes A, B, C, D, E all processes are arrived at time 0 and have burst time 4, 5, 7, 2, 5 respectively. If the time slice for each process is 2 unit and each context switch requires one unit of time (excluding first and last context switch), then which of the following statement is correct?

[MSQ]

A. At time 25, Process B is running on the system.

B. Process E finishes execution at time 31.

C. Total CPU overhead activity is 33%.

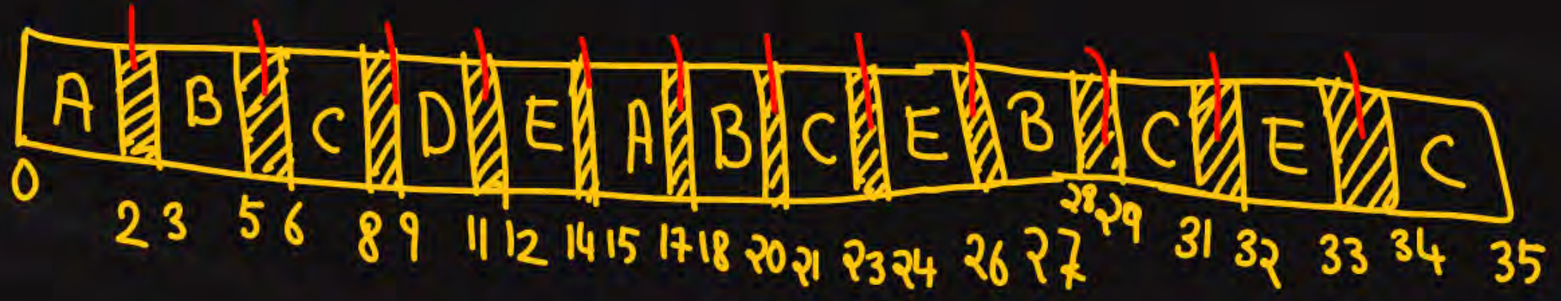
D. Process B finishes its execution before process E.

T.Q = 2

C.S = 1

Process	A.T	B.T	C.T
A	0	4	17
B	0	10	28
C	0	7	35
D	0	2	11
E	0	5	33

AB



$$\frac{12}{35} = 0.342$$

$0.342 * 100 = 34.2\%$

Q.7

In the Round Robin scheduling policy if the time quantum used is more than the maximum time required to execute any process. Then the policy will ____.

[MCQ]

A. Behave same as FCFS.

B. Behave same as SJF.

C. Behave same as HRRN.

D. None of these.

Q.8

Which of the following scheduling algorithm treat every process equally?

[MCQ]

A. Shortest Job First

B. Shortest remaining Time first (SRTF)

C. Longest remaining Time first (LRTF)

D. Round Robin


THANK YOU GW
SOLDIERS !