2-CS039

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2(b): System call :- System call is a type of program to the operating system for the required services.

Types of system calls are

(i) Process control
(ii) Device management
(iii) file management
(iv) Information maintanence
(v) communication
(vi) Protection

(i) Process control :- Process control system call indicate : end, abort, terminate, get process attribute, set process attribute etc.

When One process terminates or stop then other process starts.

(ii) file management :- file management system call indicate. create, open, read, write, close, get file attribute, set file attributes.

When one file is created then it is open and

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can write or read data to the file.

open( ): It is used to open the file

read( ): This system call read the data from the file.

write( ): This system call write the data to the file.

When all the operation on file is done it has to be closed with close( ). set attribute.

(iii) Device management: Device management system call indicate get device attribute, set device attribute, release device, retocail reposition of device.

when one user has used the device then it has to be returned to OS for the another user to use it.

(iv) Information maintainance: Information maintainance system call indicate get time, set time, attributes.

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It is used to transfer or get updated by information of operation system to the user.

(v) Communication:- Communication system is used to transfer data, get updated by the operating system properties.

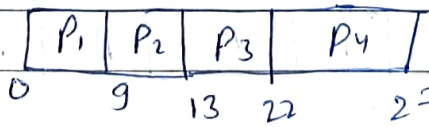
It is used to transfer data to user

(vi) Protection:- protection system call is used to ensure about error in the program while compilation.

4(a) FCFS

Process	AT	BT
P_1	0	9
P_2	1	4
P_3	2	9
P_4	3	5

Gantt chart



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TAT = CT - AT (Completion Time - Arrival Time)

TAT P_1 = 9 - 0 = 9 m/s

TAT P_2 = 13 - 1 = 12 m/s

TAT P_3 = 22 - 2 = 20 m/s

TAT P_4 = 27 - 3 = 24 m/s

Avg TAT = $\frac{65}{4}$ m/s = 16.25

WT = TAT - BT (Turn Around Time - Burst Time)

WT P_1 = 9 - 9 = 0 m/s

WT P_2 = 12 - 4 = 8 m/s

WT P_3 = 20 - 9 = 11 m/s

WT P_3 = 24 - 5 = 19 m/s

Avg WT = $\frac{38}{4}$ m/s = 9.5

(ii) SRTF

Process	AT	BT	
P_1	0	9	8 X
P_2	1	4	3 2 + 0
P_3	2	9	
P_4	3	5	X

Gantt chart

P_1 P_2 P_3 P_4

P_1	P_2	P_2	P_2	P_2	P_4	P_1	P_3

0 1 2 3 4 5 10 18 27

22+25 = @47

D D M M Y Y Y Y

Process	AT	BT	TAT	WT
P_1	0	9	18	9
P_2	1	4	4	0
P_3	2	9	25	16
P_4	3	5	7	2

Avg. TAT = $\frac{54}{4}$ ms = 13.5

Avg. WT = $\frac{27}{4}$ ms = 6.75

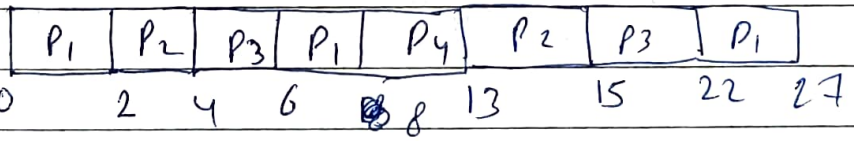
(iii) RR (q = 2ms)

Process	AT	BT		TAT	WT
P_1	0	9	7 5	27	18
P_2	1	4	2	14	10
P_3	2	9	7	20	11
P_4	3	5		10	5

q = 2ms

~~P1 P2 P3 P1 P4 P2 P3 P1~~

gantt chart



Avg. TAT = $\frac{61}{4}$ ms = 15.25

Avg. WT = $\frac{44}{4}$ = 11ms = 11

22
+19
41

D D M M Y Y Y Y

(iv) Priority Preemptive

Process	AT	BT	Priority	BT		TAT	WT
P_1	0	9	3	9	8	22	13
P_2	1	4	2	4	3	13	9
P_3	2	9	1	9	8	9	0
P_4	3	5	4	5		24	19

gantt chart

P_1 P_2 ~~P_3~~ P_4

P_1	P_2	P_3	P_3	P_2	P_1	P_4
0	1	2	3	11	14	22	27

Avg TAT = $\frac{68}{4}$ = 17

Avg WT = $\frac{41}{4}$ ms = 10.25

Quiz

1. (a)
2. (d)
3. (b)
4. (a)
5. (a)

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4(b)(i)

Process	Thread
Many program run at a time	Thread is a shoot form of process
	Only one program run at a time.