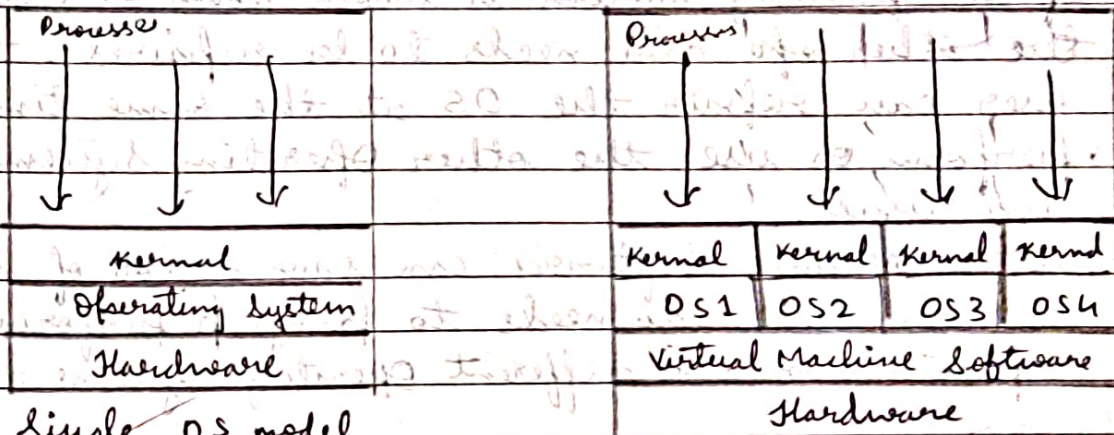


Module 1

2.

a)



(i) Single OS model

(-ii) Virtual Machine Model

Virtual Machine is a software which ~~creates~~ helps in using different operating systems for the same hardware, storage, processors. Eg:- VMware etc.

Benefits of using Virtual Machine are:

- * Different Operating Systems can be used, by this the user can use different specified softwares on the same system or computer, by which the user can save money of buying a new ^{computer}.
- * Using Virtual Machine software user can process two different tasks in different Operating Systems on the same computer by ~~use~~ dividing the usage of processor, due to this the CPU can be completely utilized.
- * The information can be shared between two the operating systems easily, by this the operator user can perform some data process on data and then the same data can be sent and processed in the other OS.
- * The Virtual Machine Software protects Operating Systems from each other, if virus is infected into a Operating system, the other operating system can be used without

any issues.

- * If an Operating System is broken down or crashed, the other software and needs to be repaired, the user can repair the OS at the same time can perform or use the other Operating Systems without any issues.
- * Virtual Machine Softwares can save a lot of money for the user who needs to ~~process~~ perform operations in two different Operating Systems.

b) System Calls - are the various processes that are required for calling a certain type of processes done by the processor, using this a certain type of process is called from or to the processor. Types of System Calls are:

i) Process Control:

end, abort
 load, execute
 get process registers, set process registers
 start process, end process
 wait for time
 wait event, signal event

ii) Data File Management System:

get file, open file
 open, close
 get file registers, set file registers
 read, write, reposition

DDMMYYYY

iii) Information Management System:
 get information register, set information register
 get file, data or directories
 set file, data or directories.

iv) Communication:
 send message, receive message
 request message, answer message
 information share between

v) Protection

vi) ~~Data Device~~ Time Management System:
 get time, set time
 read, write, reposition
 get ~~time~~ ^{device} registers, set ~~time~~ ^{device} registers
 request ~~device~~ ^{access}, get access

Module 2

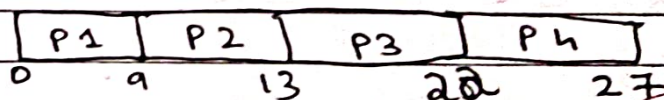
h.

a.

Process	Arrival Time	Burst Time	Priority
P 1	0	9	3
P 2	1	4	2
P 3	2	9	1
P 4	3	5	4

FCFS

Gantt chart

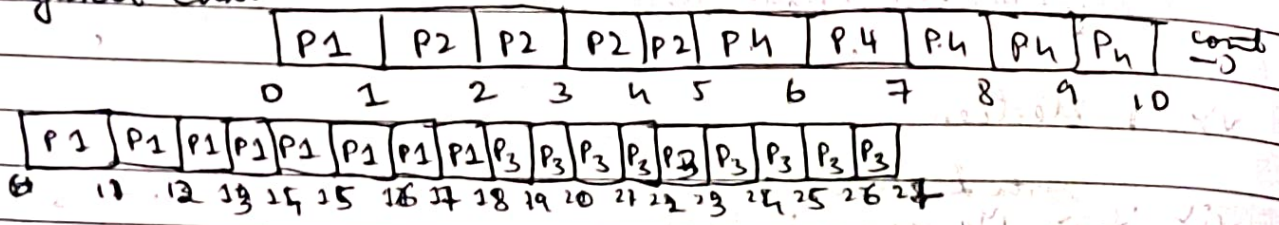


DDMMYYYY

	Waiting Time	Turn around Time	Completion Time
P1	0	9	9
P2	8	12	13
P3	11	20	22
P4	19	24	27
Avg:	9.5	16.25	

SRTF:

Gantt Chart:



	Completion Time	Turn around Time	Waiting Time
P1	18	18	9
P2	5	4	0
P3	27	25	16
P4	10	7	2
Avg		13.50	6.75

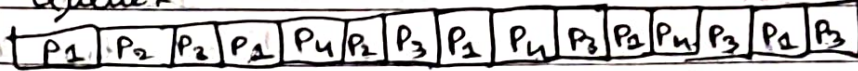
RR: (q=2ms)

Process	Arrival Time	Burst Time
P01	0	9
P2	1	4
P3	2	9
P4	3	5

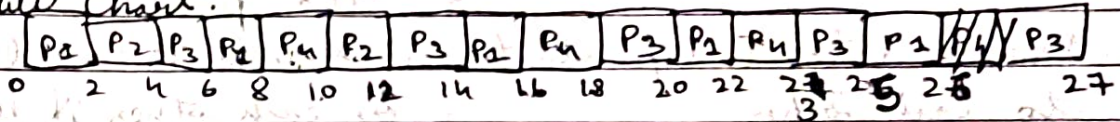
T 29 | 27 | 24 | 21
 FS 296 E 0 0

DDMMYYYY
 □□□□□□□□

Ready Queue:



Gantt Chart:

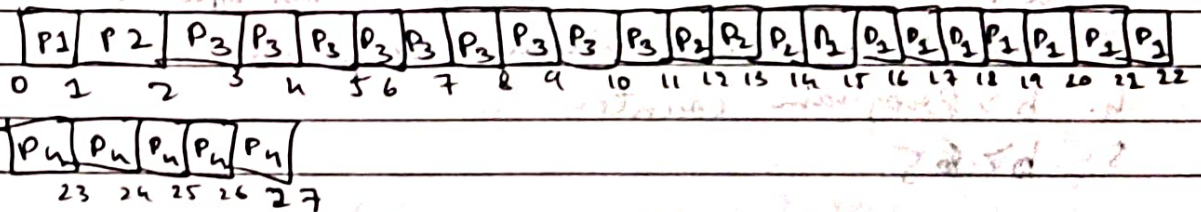


Completion Time Turn around Time Waiting Time

P1	26	26	17
P2	12	11	7
P3	27	25	16
P4	23	20	15
Avg.		20.5	13.75

Priorities:-

Gantt Chart



Completion Time Turn around Time Waiting Time

P1	22	22	13
P2	14	13	9
P3	11	10	0
P4	27	24	14
Avg.		17	10.25

b>

Process

Thread.

i> Each Process has its own ^{memory} process address

i> Thread ~~has~~ uses the ^{memory} same process address of the process.

ii> Process acts independent to each other

ii> Threads can depend on each other if they are

iii> Process cannot easily share or receive data due to change in memory address

iii> Threads can share data due to same memory address, if working for same process.

iv> Process is the operation done due to in processing an information

iv> Thread is present in process and is basic execution unit

1. c> new

2. a> when process is scheduled to run after some execution

3. b> communication between two process.

4. b> Program counter

5. b> 5