2CB0333

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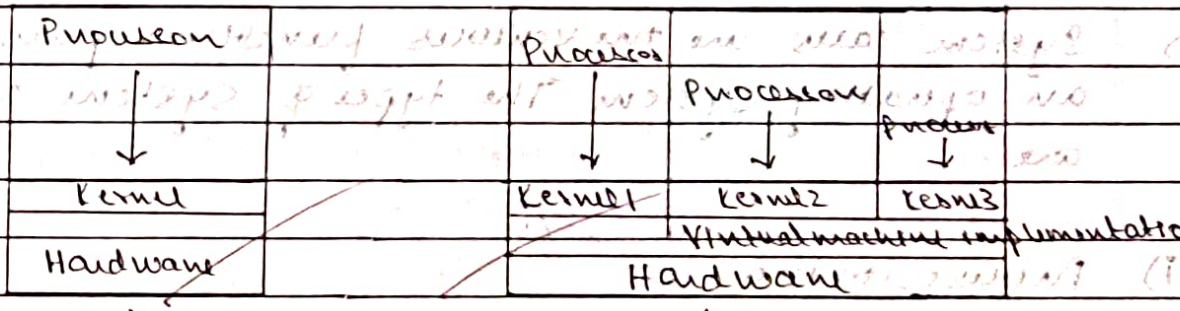
TEST-1

2a) The fundamental idea of a virtual machine is to make the hardware of a computer into multiple different execution environments thereby creating an illusion that every virtual machine has its own hardware i.e processor, memory etc....
~~The processes installed~~
The operating system installed in the ~~main~~ source ~~OS~~ is called main O.S and the O.S of the virtual machines is called guest O.S



(a) is a non virtual machine
(b) is a virtual machine

Benefits :-

*) hardware is exchanged between the machines by implementing their execution environments
*) even though virtual machines are separated from each other they can share software between them.

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*) the main OS is separated from the guest O.S and and the guest O.S are separated from each other Even if there's a virus occuring in one guest O.S it does not affect the other operating systems.
*) a virtual machine can run multiple operating systems at once
*) two or three systems can be used in just one system with the help of virtual machine.
~~Example :-~~
Examples of virtual machines: VmVare, JVM

2b) System calls are the various functions present in an operating system. The types of system calls are -

i) Process control :-
*) contains system calls such as create, load, launch, execute, remove etc...
*) if one program terminates or pauses, the other program should resume

ii) File management :-
*) contains system calls such as create file, delete file, open, read, write, file,
*) a file is created, then opened and something is read or written in it
*) a pointer file may need to be to a point

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*) The file operations are set and retrieved by system calls

iii) device management :-
*) contains system calls such as request device, release device, read, write etc...
*) when a process asks for a resource, the request for request is made. If another process is using that resource the requesting process needs to wait
*) after the process is done with using the device it needs to give it back to the O.S for other waiting processes to use them.

iv) information management :-
*) contains system calls such as get/set date, time, system data etc....
*) the user and the computer interact through these system calls
*) it displays the current time, date, version of OS, no. of users etc...

v) communication :-
*) Host system the communication system calls can create/terminate communication, send/receive messages, transfer signals etc.
*) message passing steps are -
- it searches for an empty source to operate from

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- It opens and closes the communication when required
- It ~~tra~~ & transmits messages over to other devices
- waits to receive the messages when sent across
- terminates the communication ~~betwen~~ of that network is not required

vi) Protection / Security :-

It provides the mechanism that ~~sets~~ governs which user / process is getting acces to which service of the operating system.

4b)

	Process	Threads
*)	takes more time for creating and terminating a process	*) take lesser time for creating and terminating a process
*)	makes use of more number of resources	*) makes use of less amount of resources

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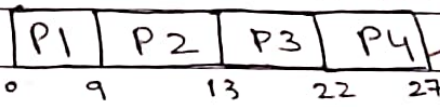
FCFS :-

49)

Process	Arrival Time	BT	CT	TAT	WT
P1	0	9	9	9	0
P2	1	4	13	12	8
P3	2	9	22	20	11
P4	3	5	27	24	19

(a) FCFS

Gantt chart : 

∴ Avg waiting time = $\frac{0+8+11+19}{4} = 9.5$ ms

QUIZ

1. a) four
2. d) none
3. c) communication bw two threads of same process
4. b) Program counter
5. b) 5