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2C30321

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12/01/24

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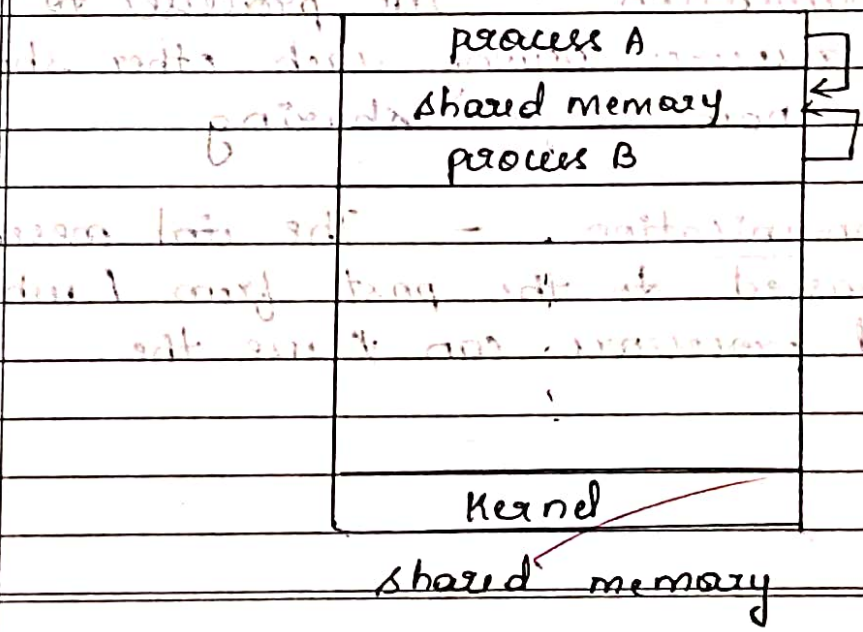
Test - 01

3) a) Inter process communication is a process in which cooperative processes share resources among each other.

Message pa

i) Shared memory process

→ A memory space is shared among the cooperative processes to share information
→ This memory space is located in the address of the process.
→ Only one system call ~~is~~ to call the shared memory space
→ It The communication is faster
→ It is used to transfer large amount of data between the processes



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Message passing.

→ In message passing, the messages are exchanged between the processors by objects

→ System call is created for every read or write message

→ ~~This process is~~

→ The communication is slow.

→ It is used when small amount of data is to be transferred

There are three ways of message passing.

1) Naming
2) ~~Synctor~~ Synchronization.
3) Buffering

Naming

Direct communication - The processes to share the resource among each other should know their name before sharing

Indirect communication - The ~~int~~ message can be passed to the post from / where the accessed processors can / use the resources.

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Synchronization

→ Asynchronous communication → Blocks the sender until information is received by receiver

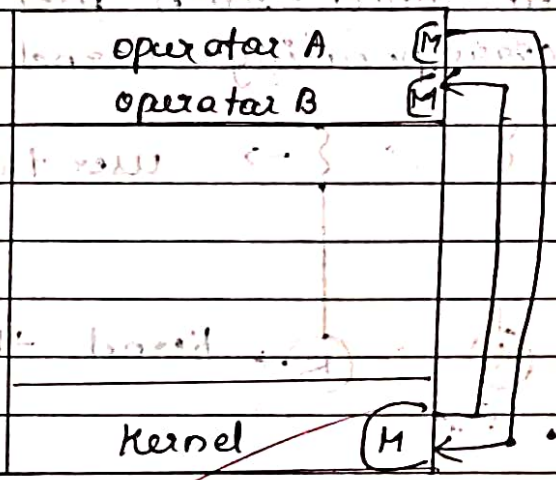
→ Synchronous communication

↓

receiver is blocked until there is a message to receive

Buffering

- Zero capacity →
- unbounded capacity → There is fixed size of files (n) after which the sender is blocked until the information is received by receiver
- bounded capacity → sender can send any amount of resources



message passing

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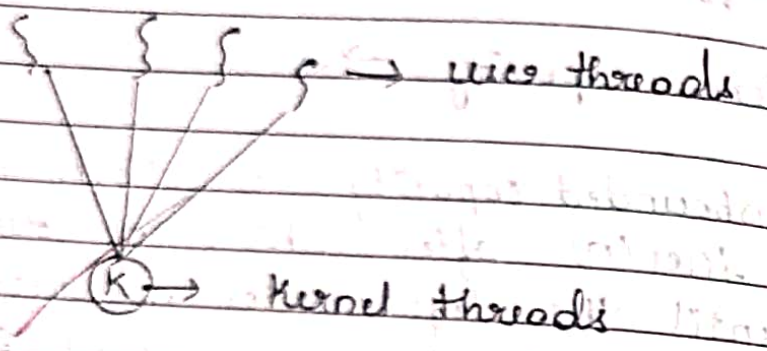
3) b) Multi-threading models

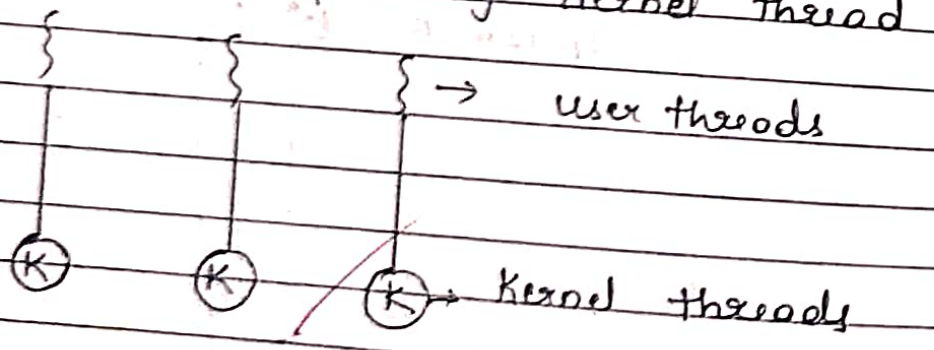
1) Many to one model

Many user-level threads are mapped to single kernel thread



2) One to one model

A model in which each user thread is mapped to corresponding kernel thread



3) Many-to many model

A model in which many user thread are mapped to small number of kernel thread

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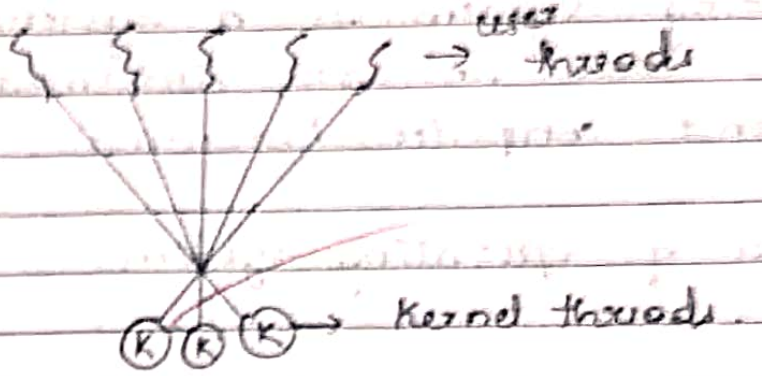

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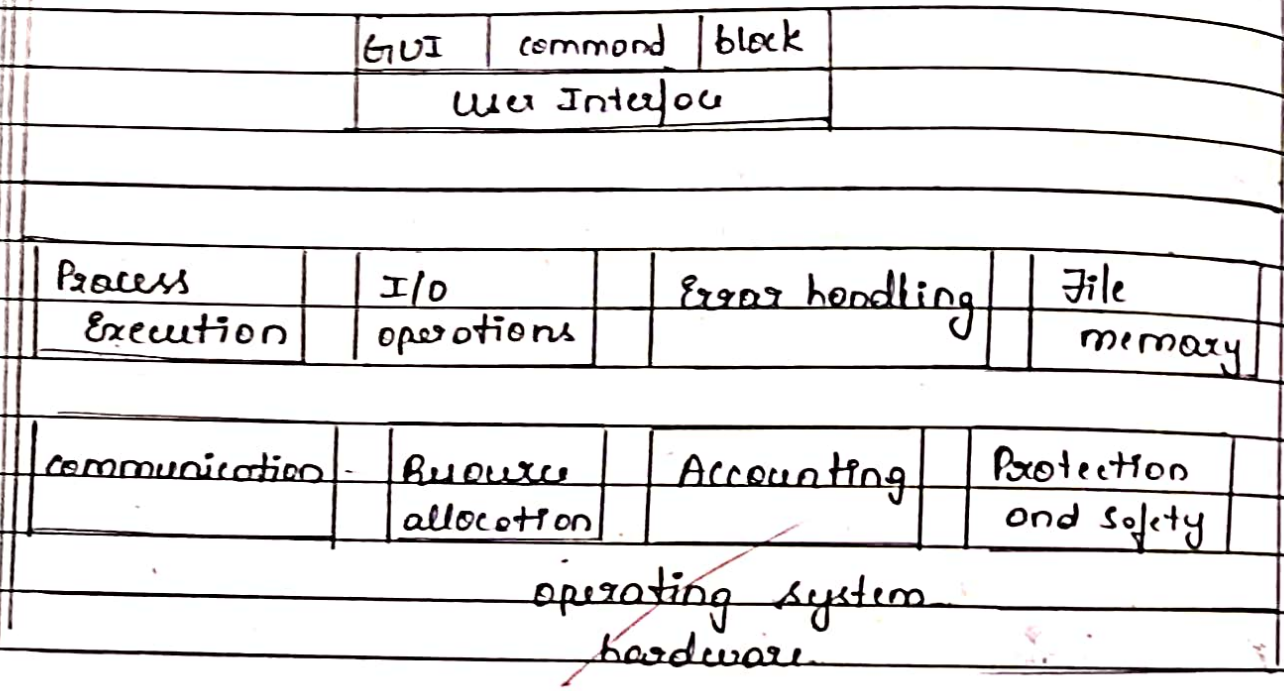
1> a) Operating System is a system software that acts as an intermediate between user and computer hardware.

Services of operating system



1> User-interative → It means the user can give the instructions to the operating system.

2> & Process Execution → The operating system executes the program instructions and give the results in the output device such as monitor

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3) Error handling → The O.S handles both hardware and software errors and executes the program with desired output

4) Communication → O.S is effective in sharing the resources among multiple process is shared memory and message passing

5) File memory manipulative → For operations that a program execution needs some data. so, the operating system is capable of opening and closing a file, reading the contents from it.

6) I/O operations → The O.S is responsible for sharing the information to and from the input output devices.

1) User - Interface → which means the user can give the instructions to the O.S
Graphical user interface
Command line interface → command is given in the instruction
Graphical user interface → command and command references are stored in a file and it is executed.

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7) Resource allocation → O.S can share the resource among multiple users.

8) Accounting → there is system to track the system operations and the amount of resources for billing purpose or for record purpose

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1) b)

i)

Multi-processor system	Clusted system
→ A system which has two or more processors in close communication	→ A system in which two or more processes are connected together via a network
→ The processors can have master-slave relationship	→ The process do not have master-slave relationship
→ multi processor do not have a hot-standby host to monitor	→ ~~Clusted~~ clustered system can have a hot-standby host that monitors other system
→ uses LAN	→ uses CLAN network

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1.b) ii)

Multiprogramming	Multitasking
→ There is no user interaction with the computer	→ There is user interaction with the system
→ time taken to execute is slow	→ time taken to execute is fast
→ CPU executes a job which has to wait for considerable amount of time as the CPU jumps to next job	→ CPU performs many jobs and by skipping from one to another so that the user frequently that user feels the system is dedicated to oneself
→ An hands-one (interactive) interface is not required	→ A hands-on (interactive) interface is required.

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Quiz.

1) a)

2) (b) ✗

3) (b)

4) (b)

5) (b)