CSE321: Operating Systems

Quiz-1

Name: _____ **ID:** _____ **Section:** ____

[CO1,CO2] Write answers to the following questions in your own words
3 x 5 = 15 Marks

1) Write the differences between micro kernel and monolithic kernel.

2) Mention three major goals/purposes of an operating system.

3) Explain the Producer part of the Producer-Consumer Problem.

4) What will happen if all processes are CPU bound?

5) Mention the functionalities/tasks that fall under the Protection and Security role of OS.

14.5 - 9.5 = 5

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Quiz-1

Name: Forhan Tanvir Ahmed ID: 19201107 Section: 04

[CO1,CO2] Write answers to the following questions in your own words
3 x 5 = 15 Marks

1) Explain System Call and System Call Interface.

Ans: System call is to create an interface of OS services. For example, call(), open() are the modules that act as system call which helps to build system program.

2.5

System call interface helps to retrieve the system function code to the user or can execute the function directly. For example, in system call interface, "call()" function identified with a number at the table and fetch the "call()" function code to the user. It usually map the function and return the source code or execute.

2) Write the differences between micro kernel and monolithic kernel.

Ans:

3

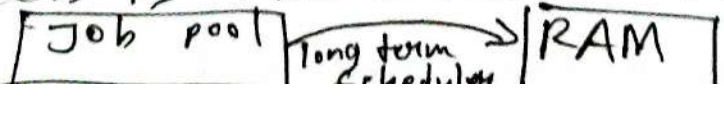
Monolithic kernel	micro kernel
i) All OS services gather into the kernel block.	i) Essential OS services only exist in the kernel block
ii) Difficult to debug	ii) Easy to debug
iii) For example, MS-DOS operating system use this OS structure	iii) For example, most of the modern OS use like "Linux" use this structure

3) Explain Long Term and Short Term Scheduler

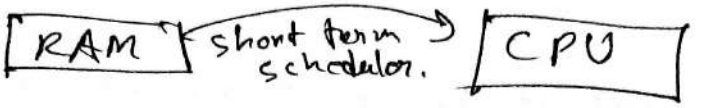
Ans!

3

Long Term Scheduler: OS choose task from secondary memory to main memory for "ready" state. This choosing time from job pool to RAM is long term scheduler. OS performance mainly depend on long term scheduler. For example, mixed of I/O bound and cpu bound is great for the OS. This process is slow compare to short term scheduler.



Short Term Scheduler: From ready queue the task then goes to the cpu for to be perform execution. This ~~red~~ ready to cpu time is called short time scheduler which is faster than long term scheduler. For example, task are continiously executed because our main target is to utilize the cpu performance and ~~to~~ keep from the idle state.



4) Explain each process state with an example.

Ans:

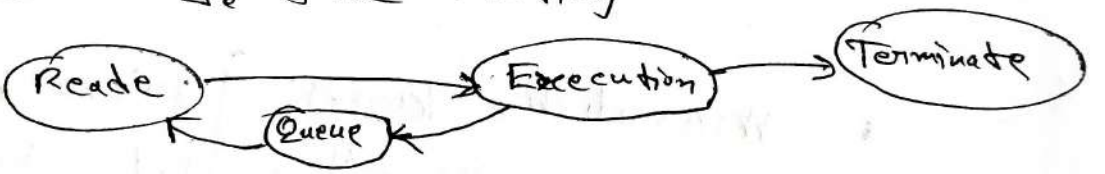
Start: Process is being ready to perform and wait in the secondary storage.

Ready: task are in the main memory (RAM).

Execution: Process has been executed in the cpu.

Terminate: The process has been ~~done~~ terminated.

Queue: For I/o interrupt, task has been gone to the waiting queue.



5) Mention the functionalities/tasks that fall under the Protection and Security role of OS.

Ans: OS has several functionalities that performing the protection and security. If the malius program changing other application then OS defend the malius program. In dual ~~boot~~ mode, the user and kernel interface has been divided so that the user cannot malfunction the kernel ~~programme~~. If there are error found in any software, then the OS ~~to~~ perform the trouble shoot for identifying the problem and solution according ~~the~~ to the level of the problem.

10-5-25

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CSE321: Operating Systems

Quiz-1

Name: Tanjim Hussain Sajin ID: 22141033 Section: 03

[CO1,CO2] Write answers to the following questions in your own words
3 x 5 = 15 Marks

1) Describe the objective of multiprogramming.

Objectives of multiprogramming:

You wrote objectives of OS

→ ~~Pipelines the~~ Provides the interaction between hardware as system user interface.

→ Eases the interaction of hardware and application programs

→ Secures effeciency on storage management and memory management.

→ Ensures user's data safety by network security.

2) Explain System Call and System Call Interface.

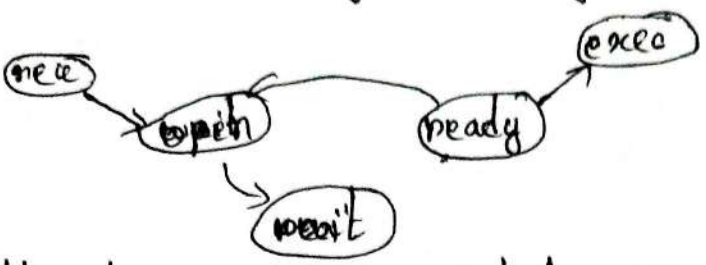
System call is the process ~~to create~~ an interface of OS services. ~~For example, call() , open() are the functionalities of system call.~~

System call interface is the process to retrieve the data from the OS structure. For example, open("A") is called where A is the parameter. Here, A is retrieved from the structure via the function.

3) What will happen if all processes are CPU bound?

If all processes are CPU bound, ready queue will be empty. For example, if a process is being executed and a file i/o is done then the process will ~~to keep wait~~ be in the waiting queue for a long time.

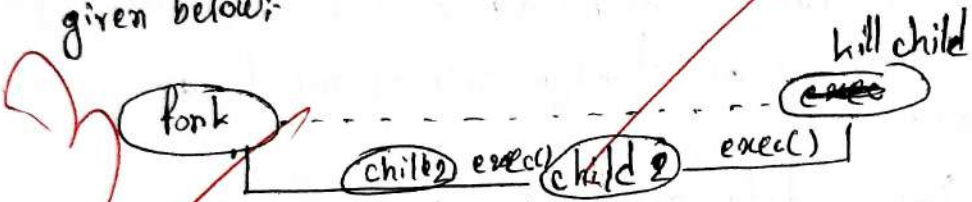
A real example would be a program being stuck on an installation of a program being stuck after a while.



Here, the diagram shows what happens while CPU bound.

4) Explain zombie process.

Zombie process is the process when a fork is called and child gets executed and killed after execution in this process. A diagram is given below:



Here's a psuedocode:

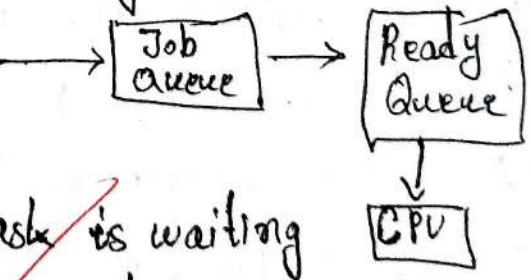
```
int main(){
    a = fork();
    if (a == 0){
        fork();
    }
}
```

Here, every child at pid == 0 is getting executed and the rest are being killed.

5) Mention the functionalities/tasks that fall under the Memory Management role of OS.

The functionalities of memory management role of OS:

* Ready queue
* Job queue



In the job queue a task is waiting to be instructed and in the ready queue it is waiting to go to the CPU for execution.

For example, a function is retrieved from the secondary location and waiting for command in the job queue. After getting command, it goes to ready queue for file i/o and waits to go to CPU till the previous task is executed.

CSE321: Operating Systems

Quiz-1

Name: _____ **ID:** _____ **Section:** ____

[CO1, CO2] Write answers to the following questions in your own words
3 x 5 = 15 Marks

1) Explain the difference between Multiprocessor and clustered system.

Multiprocessors	Clustered System
1. Multiprocessor system are single computers which have multiple CPU	1. Clustered system are group of computers which work together to do a work.
2. Multiprocessors system are lot of faster, because they communication with cache memory.	2. Cluster computer are slower, they have communicate via network.

2) How does controller work? Explain with an example.

- Electronic component which control the device
- It may handle multiple device
- May be more than one controllers per mechanical component

Controller's tasks

- Converts serial bit stream to block of bytes.
- Perform error correction
- Block of bits is first assemble bit by bit in buffer inside the controller.
- After verification, the block has been declared to be error free and copy main memory.

3) Explain the Consumer part of the Producer-Consumer Problem.

4) Why do we need a wait() system call?

5) Mention the functionalities/tasks that fall under the Protection and Security role of OS.

CSE321: Operating Systems

Quiz-1

Name: PRIONTO KUMAR CHOUDHURY **ID:** 19301089 **Section:** 03.

[CO1,CO2] Write answers to the following questions in your own words
3 x 5 = 15 Marks

1) Explain time-sharing system. (1)

→ Time sharing means to share time into multiple slots in several process. Time sharing allowing multiple clients for getting access to specific resources at once from different remotly locations and it is a logical extention of multiprograming system. In this tecnique, time of single processor is shared in among of multiple users over the entire network system simultaneously.

2) Write three differences between primary memory and secondary memory. (1)

Primary memory	Secondary Memory
1. Primary Memory can be directly accessed by CPU.	1. Secondary memory can not be directly accessed by CPU.
2. Primary Memory is volatile.	2. secondary Memory is non-volatile
3. Primary Memory is main memory of computer	3. Secondary memory is known as auxilary memory.
4. Primary Memory is internal memory	4. Secondary memory is external memory.

3) Explain the Consumer part of the Producer-Consumer Problem. (3)

4) Why do we need a wait() system call? 3

→ We need a wait() system call for completion of child process.

Two situation of child process

① If there one child is running when wait() is made called will blocked utti until child process exits.

② If there no child is running when ~~child()~~ wait() is made. then wait() creats not impact.

5) Mention the functionalities/tasks that fall under the Protection and Security role of OS. (1)

→ If the malius program changing other application then OS defend the malius program.

→ If there are found ennon in any software, then the OS perform the trouble shooting to identify the problem and find solution according to the level of problem.

→ In the dual mode, the users and _____ interface has been divided so that the users can not malfunction the _____ property.