Mid Semester Assignment

Course Name: Operating Systems

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BS (SE-8) Section: A

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Mid Semester Assignment
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Subject: Operating System Concepts

Section A

Question No: 1 (M - 1)

The hardware mechanism that enables a device to notify CPU is called an -------------
► Interrupt
► Signal
► Trap
► Process

Question No: 2 (M - 1)
The section of the process control block comprises of page and segment tables
► Memory related information
► Accounting information
► Register information
► Scheduling information

Question No: 3 (M - 1)
The -------------- system call suspends the calling process.
► fork
► wait
► exec
► exit

Question No: 4 (M - 1)
In ---------addressing, the recipient is not required to name the sender.
► Symmetric
► Asymmetric
► Both symmetric and asymmetric
► None of the given options

Question No: 5 (M - 1)
-------- command gives a snapshot of the current processes.
► ps
► top
► who
► ls

Question No: 6 (M - 1)
--------------command to resume the execution of a suspended job in the foreground
► fg
► bg
► jobs
► kill

Question No: 7 (M - 1)
You can use the ------------- command to display the status of suspended and background processes
► fg
► bg
► jobs
► kill

Question No: 8 (M - 1)
You can terminate a foreground process by pressing -------------
► <Ctrl-A>
► <Ctrl-C>
► <Ctrl-Z>
► None of the given options

Question No: 9 (M - 1)
A time sharing system is
► Multi-tasking
► Interactive
► Multi user
► All of these

Question No: 10 (M - 1)
The main characteristic of a Real time system is
► Efficiency
► Large Virtual Memory
► Large secondary storage device
► Usability

Question No: 11 (M - 1)
Shared libraries and kernel modules are stored in _____ directory

► /bin
► /dev
► /boot
► /lib

Question No: 12 (M - 1)
_____ scheduler selects the process from the job pool and put them in main memory.

► Long term
► Short term
► Medium term
► Swapper

Question No: 13 (M - 1)
In indirect inter process communication, a sender ___ mention the name of the recipient.

► do
► do not

Question No: 14 (M - 1)
A _____ is an integer variable that, apart from initialization is accessible only through two standard atomic operations: wait and signal.

► Semaphore
► Monitor
► Critical region
► Critical section

Question No: 15 (M - 1)
A semaphore that cause Busy-Waiting is termed as _____.

► Spinlock
► Monitor
► Critical region
► Critical section

Question No: 16 (M - 1)
The execution of critical sections must NOT be mutually exclusive

► True
► False

Question No: 17 (M - 1)
The performance of Round Robin algorithm does NOT depends heavily on the size of the time quantum.

► True
► False

Question No: 18 (M - 1)
The following requirement for solving critical section problem is known as _____.
"There exists a bound on the number of times that other processes are allowed to enter their critical sections after a process has made a request to enter its critical section and before that request is granted."

► Progress
► Bounded Waiting
► Mutual Exclusion
► Critical Region

Question No: 19 (M - 1)
The critical section problem can be solved by the following except

► Software based solution
► Firmware based solution
► Operating system based solution
► Hardware based solution

Question No: 20 (M - 1)
_____ is also called Swapper.

► Swap space
► Medium term scheduler
► Short term scheduler
► Long term scheduler

Section B

Question No: 21 (M - 2)
Write the formula/ procedure for calculating the waiting time in preemptive Shortest Job First scheduling.

Question No: 22 (M - 3)
If a process exits and there are still threads of that process running, will they continue to run?

Question No: 23 (M - 5)
Considering the Resource sharing feature of thread, what do you think is 'resource sharing' an advantage of a thread or disadvantage of a thread. Explain yours answer briefly.

Answers

Question No: 1   Interrupt

Question No: 2   Register information

Question No: 3   Wait

Question No: 4   Asymmetric

Question No: 5   ps

Question No: 6   fg

Question No: 7   jobs

Question No: 8   <Ctrl-C>

Question No: 9   All of these

Question No: 10   Usability

Question No: 11   /lib

Question No: 12   Long term

Question No: 13   do not

Question No: 14   Semaphore

Question No: 15   Spinlock

Question No: 16   False

Question No: 17   True

Question No: 18   Bounded waiting

Question No: 19   Firmware based solution

Question No: 20   Medium term scheduler

Question No: 21
Answer:

<u>Procedure</u>:
1- Traverse until all process gets completely executed.

   a) Find process with minimum remaining time at every single time lap.

   b) Reduce its time by 1.

   c) Check if its remaining time becomes 0 .

   d) Increment the counter of process completion.

   e) Completion time of current process = current_time +1;

   f) Calculate waiting time for each completed process.

     wt[i]= Completion time - arrival_time-burst_time

   g) Increment time lap by one.

2- Find turnaround time (waiting_time+burst_time).

Question No: 22
Answer:

No, they will not continue to run because when a process is terminated, it takes everything with it. The structure of the process is also terminated. The space that the process has taken in the RAM is also been cleaned. And also the threads of that process will be terminated as well.

Question No: 23
Answer:

Everything has some advantages and disadvantages. Resource sharing for threads is an advantage because when different resources will be used to complete a process the processing speed will be fast and the process can complete more quickly. The disadvantage of resource sharing is that when the resources are being used by one process the other process cannot use that resource until the first process is completed which means that the other process will wait for the first process to complete and which will result in slower completing time of the second process.