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Mid term exam paper

Operating System Concepts

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Question No: 1 (M - 1)

ANS: The hardware mechanism that enables a device to notify CPU is called an(**INTERRUPT.**)

Question No: 2 (M - 1)

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ANS: The section of the process control block comprises of page and segment tables (**MEMORY RELATED INFORMATION**)

Question No: 3 (M - 1)

ANS: The (**WAITE**) system call suspends the calling process.

Question No: 4 (M - 1)

ANS: In (**ASYMMETRIC**) addressing, the recipient is not required to name the sender.

Question No: 5 (M - 1)

ANS: (**Ps**) command gives a snapshot of the current processes.

Question No: 6 (M - 1)

ANS: (**Fg**) command to resume the execution of a suspended job in the foreground

Question No: 7 (M - 1)

ANS: You can use the (**JOBS**) command to display the status of suspended and background processes

Question No: 8 (M - 1)

ANS: You can terminate a foreground process by pressing (**<Ctrl-C>**)

Question No: 9 (M - 1)

ANS: A time sharing system is (**ALL OF THESE**)

Question No: 10 (M - 1)

ANS: The main characteristic of a Real time system is (**USABILITY**)

Question No: 11 (M - 1)

ANS: Shared libraries and kernel modules are stored in (**/lib**) directory

Question No: 12 (M - 1)

ANS: **LONG TERM** scheduler selects the process from the job pool and put them in main memory.

Question No: 13 (M - 1)

ANS: In indirect inter process communication, a sender **DO NOT** mention the name of the recipient.

Question No: 14 (M - 1)

ANS: A **SEMAPHORE** is an integer variable that, apart from initialization is accessible only through two standard atomic operations: wait and signal.

Question No: 15 (M - 1)

ANS: A semaphore that cause Busy-Waiting is termed as **SPINLOCK**.

Question No: 16 (M - 1)

ANS: The execution of critical sections must NOT be mutually exclusive **FALSE**

Question No: 17 (M - 1)

ANS: The performance of Round Robin algorithm does NOT depends heavily on the size of the time quantum. **TRUE**

Question No: 18 (M - 1)

ANS: The following requirement for solving critical section problem is known as **BOUNDED WAITING**.

“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.”

Question No: 19 (M - 1)

ANS: The critical section problem can be solved by the following except

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(FIRMWARE BASED SOLUTION).

Question No: 20 (M - 1)

ANS: **(MEDIUM TERM SCHEDULAR)** is also called Swapper.

Question No: 21 (M - 2)

Write the formula/ procedure for calculating the waiting time in preemptive Shortest Job First scheduling.

ANS:

| Process | Burst Time (ms.) | Arrival Time |
|--------------|------------------|--------------|
| P1 | 9 | 0 |
| P2 | 4 | 1 |
| P3 | 5 | 2 |
| P4 | 7 | 3 |
| P5 | 3 | 4 |
| Total | 28 | |

Waiting Time

Waiting Time = Total waiting Time – No.of Milisec. Process executed – Arrival Time

$$P1 = 20 - 1 - 0 = 19 \text{ ms,}$$

$$P2 = 4 - 3 - 1 = 0 \text{ ms,}$$

$$P3 = 8 - 0 - 2 = 6 \text{ ms}$$

$$P4 = 13 - 0 - 3 = 10 \text{ ms,}$$

$$P5 = 5 - 0 - 4 = 1 \text{ ms.}$$

Total Waiting Time = 36 mills.

Avg.Waiting Time:

$$36 / 5 = 7.2 \text{ mills}$$

Turnaround Time:

Turnaround Time = Total Turnaround Time- Arrival Time

$$P1 = 28 - 0 = 28 \text{ ms,}$$

$$P2 = 5 - 1 = 4,$$

$$P3 = 13 - 2 = 11,$$

$$P4 = 20 - 3 = 17,$$

$$P5 = 8 - 4 = 4$$

Total Turnaround Time= 64 mills

Average Turnaround Time:

Avg. Turnaround Time = Total Turnaround Time / No.of Process

= 64 / 5

= 12.8 mills.

Question No: 22 (M - 3)

If a process exits and there are still threads of that process running, will they continue to run?

ANS:

Yes,when the process exits, it will takes everything with itself, The KTLs, the process the memory space etc and everything that include threads.

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.

ANS:

Resource sharing is that threads share resource and memory of the process within the same address space. Economy allocating memory and resources for process creation is costly. Threads share the resources of the process it belongs.

The advantage of threads, use of the threads provides cuncurrency within a process.Efficiency communication. It is more ergonomically to create and context switch threads. The threads alow the utilization of multiprocessor architecture at greater level.The blocking is the major disadvantage if the kernel is single thread. A system call o one thread will block the process of whole process and CPU will get idle during the blocking periods.

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End of the Paper
