**DFT GROUP OF INSTITUTIONS**

**CS2411-OPERATING SYSTEM**

 **Unit I- Processes and Threads**

**PART A (2 MARK)**

1. What are the main purposes of OS?
2. Define operating system. Give any two OS you worked.
3. Compare tightly coupled and loosely coupled system.
4. Define context switch.
5. Show the different states in which a process may be with a neat diagram..
6. What are the benefits of multithreaded program.?
7. Write short notes on task control block.
8. What is mean by time sharing system?
9. Write the advantages of multiprocessor system.
10. Differentiate symmetric and asymmetric multiprocessor systems.
11. How hard real time system differ from soft real time system.?
12. What are the five major categories of system calls?
13. Define

(i)SYSGEN (ii) bootstrap program

 14. Name the different types of sockets used in java.

 15. Under what circumstances would a user be better off using time sharing system, rather

 than a PC or single user work station

 16. Why the command interpreter is usually separate from the kernel.?

 17. When a thread is created what resources are used ?

 18. Give the usage of fork and exec system calls.

 19. Differentiate long term scheduler from short term scheduler

 20. what is mean by spooling.?

**PART B (16 MARK)**

1. Describe the essential properties of the different types of operating system
2. What are the system components of an OS and explain them.?
3. Write about the various system calls in detail.
4. What are the various process scheduling concepts.?
5. Give an overview about threading model and Threading issues.
6. Explain briefly about IPC and the principle of IPC in Linux.
7. How communication takes place in client- server systems.?
8. How the components of OS interconnected and melded into kernel.?
9. Summarize the concept of virtual machine.
10. Describe the following
11. Process and their states
12. PCB
13. Cooperating process.

**UNIT II –PROCESS SCHEDULING AND SYNCHRONIZATION**

2 MARK

1. Define deadlock.
2. What is critical section problem.
3. List out the four necessary conditions that are needed for deadlock can occur.
4. Compare preemptive and non preemptive scheduling.
5. State the two parameters of semaphore.
6. Is it possible to have deadlock involving only one process ? State your answer.
7. What is busy waiting? Is it preferable over blocking wait? Give reason.
8. How ensure that the circular wait condition never holds to prevent the deadlock?
9. State the two algorithms used to implement bankers algorithm.
10. why spin locks are not appropriate for multiprocessor system.?
11. Give two hardware instructions and their definitions which can be used f o r implementing mutual exclusion
12. Write short notes on dispatcher.
13. How can you avoid race condition? Define race condition.
14. What are the various scheduling criteria for dispatch latency.?
15. Distinguish entry section and exit section.
16. Give the usage of Gantt chart.
17. Which is the major problem in priority –scheduling algorithm? And what is the solution for that problem.
18. What are the parameters of multilevel feedback queue schedulers.
19. Differentiate growing phase and shrinking phase.
20. Compare signaled and non signaled state.

PART B (16 MARK )

1. Discuss the performance evaluation of scheduling algorithms.
2. How does deadlock avoidance differ from deadlock prevention? Write about deadlock avoidance algorithm in detail.
3. Write about deadlock conditions and banker’s algorithm in detail.
4. What are the four necessary conditions that lead tom Dead Locks? Explain in detail.
5. Assume the following workload in a system. All jobs arrive at time 0 in the order given

 Job burst time priority

 A 8 2

 B 4 1

 C 5 4

 D 2 2

 E 1 3

1. Raw a Gantt chart illustrating the execution of these job using FCFS,RR (quantum=4) ,non preemptive priority and S?JF CPU scheduling.
2. Calculate the average waiting time and average turnaround time for each above scheduling algorithm.
3. Write about critical regions and monitors.
4. What are the methods involved in recovery from deadlock.?
5. Explain the classic problem of synchronization.
6. What is mean by semaphore and explain it detail.?
7. Explain what semaphores are, their usage ,implementation given to avoid busy waiting and binary semaphore.