CS 303 - OPERATING SYSTEMS CONCEPTS (3 CREDITS)

ASSIGNMENT 02

Answer **ALL** Questions

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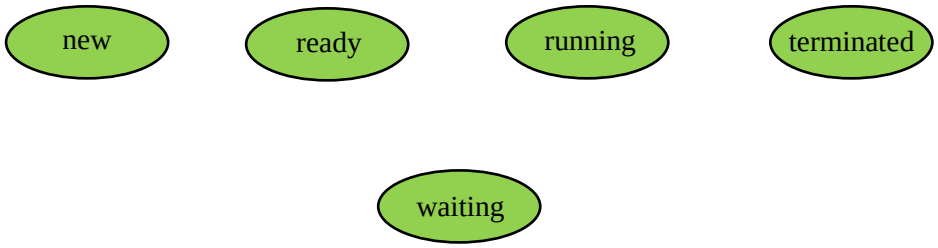
1. Define the term “Process” in computer applications.
2. What is the difference between a **process** and a **program**?
3. Briefly discuss the difference between a **job** and a **process**.
4. Process memory is partitioned into four sections. State and discuss each of them briefly.
5. The following diagram illustrates the various states a process can be in, draw arrows connecting each pair of states that a preemptive OS may move a process between. Label each arrow with a brief description of a situation where the OS would move the process as indicated.



6. Explain why the OS would move a process in the running state to the waiting state.
7. Discuss a situation where the OS would move a process from waiting state to the ready state.
8. List down the typical content associated with a process control block (PCB).
9. Briefly explain the purpose of having PCBs in process management.
10. What are the advantages of multiprogramming?
11. Tabulate the difference between multiprocessing and multiprogramming.
12. Discuss how the process scheduler helps in multiprogramming.
13. Explain scheduling queues.
14. Define the terms “short-term scheduler” and “long-term scheduler” and clarify the key difference between the two terms.
15. “The system with the best performance will have a combination of CPU-bound and I/O bound processes”, justify this statement.
16. What is context switching?
17. Explain the term “cascading termination” in process operations.
18. State three techniques in which processes on the same processor can communicate with each other. If any of the techniques require hardware support to achieve communication, explain.
19. “Message passing is typically faster than shared memory”. Do you agree with this statement? Justify the answer.
20. Discuss the difference between direct communication and indirect communication in message-passing (message-based) systems.