Question 1 , 6marks

Multiple Choice Questions

1. Which of the following maintains information about a process?

a) Stack
b) Translation Lookaside Buffer
c) Process Control Block
d) Program Control Block

2. The scheduler that selects which process should be executed next and allocates CPU is called:

a) Long-term scheduler
b) Medium-term scheduler
c) Short-term scheduler
d) High-term scheduler

3. The amount of time which is required to execute a particular process is called:

a) Waiting time
b) Burst time
c) Response time
d) Turnaround time

4. Which of the following is not an advantage of multiprocessor systems?

a) Increasing throughput
b) Increasing reliability
c) Faster execution of processes
d) Reducing reliability

5. A process that cannot affect or be affected by other processes executing in the system is called:

a) A Cooperating process
b) An Independent process
c) A Passive process
d) A Terminated process

6. An abstract hardware of a single computer into several different execution environments is called:

a) Virtual machine
b) CPU scheduling
c) Cloud computing
d) Network Address Translation (NAT)

Question 2 , 6marks

True or False

1. When the time quantum increases, the number of context switches increases. [ ]

2. The main memory is the only large storage media that the CPU can access directly. [ ]

3. A context switch occurs when the CPU switches from executing one process to another. [ ]

4. Protection is used to defend the system against internal and external attacks. [ ]

5. SJF scheduling gives maximum average waiting time for a given set of processes. [ ]

6. CPU utilization means keeping the CPU as busy as possible. [ ]

Question 3 , 6marks

Fill in the Blanks

1. _____ is the one program running all the time on the computer.
2. _____is the defense of the system against internal and external attacks.
3. _____ are mostly accessed by programs via a high-level ____ rather than direct-call usage.
4. _____ scheduler selects which process should be executed next and allocates CPU.
5. Peterson's Solution is a solution to the ____ problem.
6. Advantages of process cooperation: _____.

Question 4 ,(2+2+2respectively) =6marks

Short Answer Type Questions

1. List and explain two different states a process can be within an operating system.

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2. Describe two general solutions to the Critical-Section Problem and explain how each works.

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3. Compare between Indirect Communication and Direct Communication.

Question 5 =6marks

Process	**Duration** (burst time)
P1	**6**
P2	**2**
P3	**4**

Assumption: All processes arrived at time 0 , Task: Use the (RR) Scheduling technique with q = 3, draw the
Gantt Chart, and calculate the average waiting time.

