

Note: 1) All questions are compulsory.

2) Figures to the right indicate marks.

3) Mixing of sub-questions is not allowed.

**Q1: Attempt any THREE of the following:(5marks each)**

**[15marks]**

- Write a note on layers and views of a computer system.
- Write a note on States of process.
- Explain evaluation of operating system.
- Write a short note on the process control block.
- Explain different services provided by the operating system.
- List and explain reasons for process termination.

**Q2: Attempt any THREE of the following:(5marks each)**

**[15marks]**

- Write a short note on symmetric multiprocessors.
- Explain Solaris multithreaded architecture with examples.
- Explain RPC using threads.
- Explain windows 2000 thread states.
- Write a short note on Peterson's algorithm.
- Write a short note on semaphore.

**Q3: Attempt any THREE of the following:(5marks each)**

**[15marks]**

- Write a short note on principles of deadlock.
- Explain memory management techniques in detail.
- Explain the concept of paging.
- List and explain deadlock prevention techniques.
- Write a short note on segmentation.
- Explain the deadlock detection algorithm.

**Q4: Attempt any THREE of the following:(5marks each)**

**[15marks]**

- Explain levels of scheduling with the help of a diagram.
- Write a short note on round Robin scheduling. Consider the set of 5 processes whose arrival time and burst time are given below-

Process id.	Arrive time.	Burst time
P1	0	5
P2.	1.	3
P3.	2.	1
P4.	3.	2
P5.	4.	3

If the CPU scheduling policy is Round Robin with time quantum = 2 unit, calculate the average waiting time

- Explain thread scheduling techniques.
- List and explain the characteristics of real-time operating systems.
- List and explain the different scheduling criteria.
- Differentiate between preemptive and non-preemptive scheduling.

**Q5: Attempt any THREE of the following:(5marks each)**

**[15marks]**

- Explain DMA with its typical block diagram.
- Define and explain 5 file organization.
- Explain I/O buffering with its type.
- List and briefly define five file organizations.
- Write a note on viruses.
- Explain malicious software and its type.

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