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**Q.P. Code: 25709**

**(3 Hours)**

**Total Marks: 80**

N.B. 1) Question No.1 is compulsory.

- 2) Attempt any three questions out of remaining five questions.
- 3) Assume suitable data whenever required but justify the same.
- 4) Assumption made should be clearly stated.

- Q. 1 (a) Define an operating system? What are the different functions of an OS? (5)  
(b) What is a Process? What are the contents of a Process Control Block? (5)  
(c) What are the different features of a Real Time OS? (5)  
(d) Explain Segmentation as a Memory Management scheme. (5)
- Q. 2 (a) What is Preemptive and Non-Preemptive CPU scheduling? Explain any one CPU scheduling algorithm in detail. (10)  
(b) Explain concept of I-nodes in Unix operating system. (10)
- Q. 3 (a) What is a Deadlock? What are the four conditions for a deadlock to occur? (10)  
(b) Explain RAID architecture to manage devices in an OS (10)
- Q. 4 (a) Explain clearly Demand Paging and concept of Virtual memory in an OS. (10)  
(b) What are the different issues to be considered in scheduling in a real time OS. (10)
- Q. 5 (a) Explain contiguous and non-contiguous file allocation techniques in an OS. (10)  
(b) What is the kernel of an OS? Describe Monolithic kernel and microkernel architecture of an OS. (10)
- Q. 6 (a) Compare and contrast Unix and Windows operating system. (10)  
(b) Write a note on Device management in an OS (10)