

Code No: 155AP

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year I Semester Examinations, February - 2022****COMPUTER ORGANIZATION AND OPERATING SYSTEMS****(Electronics and Communication Engineering)****Time: 3 Hours****Max. Marks: 75****Answer any five questions  
All questions carry equal marks**

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- 1.a) Illustrate the diagram for connection between the processor and the memory and explain basic operational concepts of computer.  
b) Obtain the 9's and 10's complement of the following six digit decimal numbers: 123901, 090567. [7+8]
- 2.a) What is an Addressing mode? List and explain the various addressing modes with an example.  
b) Explain the arithmetic micro operations. [9+6]
3. With the help of a neat block diagram, explain the decision-making capabilities in the Control unit. [15]
- 4.a) Explain the characteristics of memory system.  
b) Explain about the Address sequencing.  
c) Give a brief note on RAID. [5+5+5]
- 5.a) Using block diagram, explain the working of DMA Controller.  
b) When a device interrupt occurs, how does the processor determine which device issued the Interrupt? Explain. [7+8]
6. What is the basic advantage of using interrupt-initiated data transfer over transfer under Programmed control without an interrupt? Explain interrupt-initiated I/O in detail. [15]
- 7.a) Differentiate between internal and external fragmentation. Which one occurs in paging Scheme?  
b) What is a system call? Explain how a user application invoking the open () system call is handled. [8+7]
- 8.a) Explain briefly about Acyclic-Graph Directories structure with diagram.  
b) Explain why logging metadata updates ensures recovery of a file system after a file-System crash. [7+8]

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