

R16

Code No: 136AV

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, May - 2019

COMPUTER ORGANIZATION AND OPERATING SYSTEMS

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

- 1.a) What is the different general purpose registers involved in the typical computer system? [2]
- b) Define $(r-1)$'s complement and r 's complement. [3]
- c) What is Memory Interleaving? [2]
- d) What are the special features of Direct RDRAMs? [3]
- e) What is PCI Bus? [2]
- f) What are the objectives of IEEE1394? [3]
- g) Differentiate protection and security. [2]
- h) List out the services provided by OS. [3]
- i) What is 'a file'? Mention some file attributes. [2]
- j) What is the file system structure in OS? [3]

PART - B

(50 Marks)

- 2.a) Give the major characteristics of RISC and CISC architectures.
- b) Explain 3 steps of a processor to perform execute instruction. [7+3]

OR

- 3.a) Represent the number $(+95.4)_{10}$ as a floating-point binary number with 24 bits? The normalized fraction mantissa has 16 bits and the exponent has 8 bits?
- b) What are the basic differences among a branch instruction, a call subroutine instruction, and program interrupt? [7+3]

- 4.a) Compare paging and segmentation mechanisms for implementing the virtual memory.
- b) What is hard wired and microprogrammed control? [7+3]

OR

- 5.a) Discuss the different mapping techniques used in cache memories and their relative merits and demerits.
- b) What is RAID and how does it work? Why is RAID used? [5+5]

- 6.a) What are the functions of typical I/O interface?
b) Explain with the block diagram the DMA transfer in a computer System. [3+7]

OR

- 7.a) Describe in detail about IOP organization.
b) What are interrupts? How are they handled? [6+4]

- 8.a) Explain in detail about the paging scheme.
b) What is the cause of thrashing? How does system detects thrashing? Once it detects thrashing, what can the system do to eliminate this problem? [6+4]

OR

9. What are the four necessary conditions that must be satisfied simultaneously in a system for the deadlock to occur? How to detect and avoid deadlock? [10]

- 10.a) What are 'Directories'? What are the operations that can be performed on the directories? Explain Directory structures.
b) What are different file access methods? Explain. [6+4]

OR

- 11.a) Explain in detail about file allocation methods.
b) Consider a system where free space is kept in a free-space list. Suppose that the pointer to the free space list is lost. Can the system reconstruct the free-space list? Explain your answer? [7+3]

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