

Code No: 125EN

R15

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, May - 2018

COMPUTER ORGANIZATION AND OPERATING SYSTEMS

(Common to ECE, ETM)

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) Classify the Arithmetic Micro operations. [2]
- b) Explain the role of program counter in Instruction execution. [3]
- c) Draw and Explain the Microinstruction Format. [2]
- d) What is virtual memory? [3]
- e) Define synchronous bus with read and write cycles. [2]
- f) Differentiate synchronous and asynchronous communication. [3]
- g) Define logical address and physical address. [2]
- h) Explain the three main purposes of an operating system. [3]
- i) Define Free-Space list. [2]
- j) Discuss the inadequacies of simple file system. [3]

PART - B

(50 Marks)

- 2.a) Calculate the arithmetic operations $(+70) + (+80)$ and $(-70) + (-80)$ with binary numbers in signed 2's complement representation. Use eight bits to accommodate each number together with its sign. Show that overflow Occurs in both cases.
 - b) Explain different Shift Micro-operations with examples. [5+5]
- OR**
- 3.a) Explain Binary Adder- Sub tractor with Diagram in detail.
 - b) Explain in detail about RISC architecture. [5+5]
4. Explain the Organization of Micro programmed control unit in detail. [10]
- OR**
- 5.a) Explain organization of a $1\text{ K} \times 1$ memory chip with neat diagram.
 - b) Explain Associative mapping technique with its advantages and disadvantages. [5+5]
6. Discuss the following:
 - a) Parallel priority Interrupt.
 - b) Priority Encoder. [5+5]
- OR**
- 7.a) Discuss Handshaking method of Asynchronous data transfer technique.
 - b) Discuss USB Serial communication protocol in detail. [5+5]

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8. Explain the Bankers algorithm for deadlock avoidance with Example. [10]

OR

9. Explain the basic Scheme of page replacement and about the various page replacement strategies with examples. [10]

10.a) Explain in detail about File sharing and protection.

b) Discuss about Tree structured directories with diagram.

[5+5]

OR

11.a) Explain File system mounting in detail.

b) Explain about Acyclic-Graph Directories structure with diagram.

[5+5]

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