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 K × 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]

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]

---ooOoo---