Code No: 115EN **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, March - 2017
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) Perform $(-15)_{10} + (+3)_{10}$ using 2's compliment. [2]
b) Discuss the metrics used in the performance of a computer. [3]
c) Write down the differences between a microprocessor and micro controller. [2]
d) Give a brief note on PROM. [3]
e) Mention the basic differences between an Isolated I/O and Memory-Mapped I/O. [2]
f) Explain the significance of PCI Bus. [3]
g) How to map a logical address into a physical address? [2]
h) Differentiate between Distributed System and a Real-Time System. [3]
i) Discuss about back-up and recovery of a file system. [2]
j) Define mounting. What is the need for mounting in a file system? [3]

PART - B

(50 Marks)

2.a) How index addressing mode is different from relative addressing mode? Explain.
b) Obtain the 9's and 10's complement of the following six digit decimal numbers: 123901, 090567. [4+6]

OR

3. Draw the block diagram of a 4-bit parallel adder and subtractor and explain its significance and functionality. [10]

4. With the help of a neat block diagram, explain the decision-making capabilities in the control unit. [10]

OR

5. Explain the cache memory mapping techniques with relevant diagrams. [10]

6.a) What is a priority interrupt? Explain daisy-chaining priority methods with a neat diagram.
b) Write a detailed description of Priority Encoder. [5+5]

OR

7. What are the features of USB? Explain USB protocol along with its merits and demerits. [10]

8. What are the necessary conditions for Deadlock? Explain Banker's algorithm with an illustrative example. [10]

OR

9.a) Explain about the implementation of the hashed page table approach.

b) Briefly explain about demand paging. [5+5]

10. Explain the following terms with neat diagrams and examples:
a) Two level directory structure.
b) DAG structure. [5+5]

OR

11.a) Explain how the remote file sharing can be done in RFS.

b) Explain why logging metadata updates ensures recovery of a file system after a file-system crash. [5+5]

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