Code No: 114CN **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year II Semester Examinations, May - 2016
COMPUTER ORGANIZATION
(Computer Science and 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 role of PC, IR registers? [2]
b) How many references to memory are needed for direct address instruction to bring an open and into a processor register? [3]
c) What are the advantages of DMA? [2]
d) Explain dairy-chain priority interrupt. [3]
e) What is hit ratio? [2]
f) What is the transfer rate of an eight-track magnetic tape whose speed is 120 inches per second and whose density is 1600 bits per inch? [3]
g) What is the function of 8086 index registers? [2]
h) What is non-maskable interrupt? [3]
i) What is the use of 'CMPS' 8086 instruction? [2]
j) Explain 'ROR' and 'ROL' 8086 instructions. [3]

PART - B **(50 Marks)**

2. Explain various instruction formats. [10]

OR

3. Explain various addressing modes with examples. [10]

4. Draw and explain the block diagram of DMA controller. [10]

OR

5. Explain source-initiated and destination initiated data transfer using handshaking. [10]

6. The access time of a cache memory is 100 ns and that of main memory 1000 ns. It is estimated that 80% of the memory requests for 'read' and remaining 20% for 'write'. The hit ratio for read accesses only is 0.9. A write-through procedure is used.
a) What is the average access time of the system considering only memory read cycles?
b) What is average access time of the system considering only memory read cycles?
c) What is the hit ratio taking into consideration the write cycles? [4+3+3]

OR

7.a) Explain the set-associative mapping of cache memory.
b) Write short notes on virtual memory. [5+5]

8. Explain the fields in 8086 flag register. [10]

OR

9. Explain the pin diagram of 8086 with figure. [10]

10. Write 8086 assembly language program to convert a 16-bit binary number into Equivalent BCD number. [10]

OR

11. Write a 8086 assembly language program to find two 16-bit operands. [10]

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