R17

Code No:841AB

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
MCA I Semester Examinations, January - 2018
COMPUTER ORGANIZATION

Time: 3hrs **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

5 × 5 Marks = 25

1.a) Design a 4-to-16 line decoder using 3-to-8 decoders. [5]
b) What is meant by locality of reference? Discuss briefly. [5]
c) Illustrate direct and indirect addressing modes with an example. [5]
d) Write the differences between Isolated I/O and Memory mapped I/O. [5]
e) Discuss about the conflicts arise during instruction pipelining. [5]

PART - B

5 × 10 Marks = 50

2.a) Apply Booth's algorithmto multiply 10111 with 10011.
b) Convert the following numbers decimal numbers to binary and octal:
i) 4310 ii) 574 [6+4]

OR

3. Depict the flowchart for division operation and explain the same with an example.[10]

4. Discuss various cache memory mapping techniques with relevant diagrams. [10]

OR

5.a) Write a brief note on Auxiliary memory.
b) Consider a direct-mapped cache with 64 blocks and a block size of 16 bytes. To what block number does byte address 1200 map? [6+4]

6.a) Give an example for illustrating relative and register addressing mode.
b) Explain various shift instructions of 8086 processor. [6+4]

OR

7. List and explain various assembler directives of 8086 microprocessor with examples for each. [10]

8. Explain programmed I/O and interrupt-initiated I/O modes of data transfer. [10]

OR

9. Describe the functionality of Daisy-chaining priority interrupt method. [10]

10. Write down the applications of vector processor and explain how to compute matrix multiplication on a vector processor. [10]

OR

11.a) Determine the number of clock cycles that it takes to process 200 tasks in a six-segment pipeline.
b) Write a short note on shared memory multiprocessors. [5+5]

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