R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year II Semester Examinations, November/December - 2015
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) Define instruction and interrupt. [2M]
 b) Perform logic OR and XOR operations with two binary strings 10101010 and 11001100. [3M]
 c) Give the four major I/O commands used to perform the execution of an instruction. [2M]
 d) What is the basic advantage of using interrupt-initiated data transfer over transfer under program counter without an interrupt? [3M]
 e) Write the importance of Cache memory. [2M]
 f) How many lines of address bus must be used to access 4096 Bytes of memory? How many of these lines are common to all chips? [3M]
 g) List the advantages of segmented memory. [2M]
 h) What is the use of LOCK prefix? [3M]
 i) Explain the 8086 instruction format. [2M]
 j) Write an Assembly language program for Addition of two numbers. [3M]

PART-B

(50 Marks)

2. Write a program for zero-, one-, two- and three-address machines to evaluate $ax^2 + bx + c$, given the values for x, a, b, and c. [10]

OR

3.a) What are the basic differences between a branch instruction, a call subroutine instruction, and a program interrupt.
 b) List and explain various types of interrupts. [6+4]

4. It is necessary to transfer 256 words from a magnetic disk to a memory section starting from 1230. The transfer is by means of DMA.
   a) Give the initial values that the CPU must transfer to the DMA controller.
   b) Give step by step account of the action taken during the input of the first two words. [10]

OR

5. How many characteristics per second can transmitted over 1200-baud line in each of the following modes? (Assume character code of eight bits)
   a) Synchronous serial transmission.
   b) Asynchronous serial transmission with two stop bits.
   c) Asynchronous serial transmission with one stop bits. [10]

6.a)   Explain the Set-associative mapping in detail.
  b)   A block set-associative cache memory consists of 128 blocks divided into four block sets. The main memory consists of 16,384 blocks and 256 eight bit words. How many bits are required for addressing the main memory? How many bits need to represent the TAG, SET and WORD fields?   [5+5]

OR

7.a)   What is page replacement? List and briefly describe the algorithms used for page replacement.
  b)   What is paging? How virtual address is mapped with main memory address?[6+4]

8.   Explain in detail the addressing modes of 8086 with examples.   [10]

OR

9.a)   Give a note on flag register in 8086.
  b)   Draw the minimum mode pin diagram for 8086.   [5+5]

10.   Write a program to find transpose of 3×3 matrix.   [10]

OR

11.a) Using 8086 instructions write recursive program to find the factorial of a number.
   b) Convert BCD number to equivalent base-F number using 8086 instruction set.
                                                                               [5+5]

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