FACULTY OF ENGINEERING

B. E. III Year (ECE) I-Semester (Old) Examination, November / December 2008

Subject: Computer Organization and Micro Processors

Time: 3 Hours {Max. Marks: 75}

Note: Answer all questions of Part - A and answer any five questions from Part-B.

PART - A (25 Marks)

1. Explain what do you understand by stored program concept. To implement this concept, which functional component plays an important role. (2)

2. Represent the number (+46.5)\text{10} as a floating point binary number with 24 bits. The normalized fraction mantissa has 16 bits and the exponent has 8 bits. (3)

3. What is a stack and what is its role in the operation or execution of computer instructions? (3)

4. What is the difference in direct mapping and set-associative mapping techniques in cache memories? (2)

5. Distinguish between memory mapped I/O, and I/O mapped I/O, how many I/O devices can be addressed in each case? (3)

6. Explain the functions of ALE and I O/M signals of the 8085 microprocessor. (2)

7. Write a ALP (Program) in 8085 to subtract two 8-bit decimal numbers. (3)

8. What are different operating modes of 8255? (3)

9. What is the difference between an assembler and a compiler? (2)

10. Draw a schematic of an array Processor. (2)

PART - B (5x10=50 Marks)

11. Draw the flow chart for computer cycle control and explain what happens during fetch, execute and indirect cycles? (10)

12. (a) Convert the following numerical arithmetic expression into RPN and show the stack operations for evaluating the numerical result. (5)

   
   
   \[ (3 + 4) \times [10 (2+6) + 8] \]

   (b) Explain briefly various addressing modes. (5)

13. (a) Write an ALP for 8085 to add two multiple precision BCD numbers. (5)

   (b) Explain 'STA adds' instruction with timing diagram. (5)

14. Using a 8254 programmable interval timer as an interfacing device to a 8085 microprocessor, explain how a square wave of 20ms time period is generated. Assume clock frequency of 8085 to be 2MHZ. (10)

15. Explain what do you understand by virtual memory. Explain the address translation mechanism of any typical processor used in contemporary computer systems. (10)

16. (a) What is Flynn's classification of computers? Explain. (3)

   (b) Draw the block schematic of a five-stage pipelined processor. Explain. (7)

17. Explain the various issues concerning the interrupt processing in micro processor systems. How multiple interrupts are handled and how does processor respond to interrupt request? (10)

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