10CS45

Fourth Semester B.E. Degree Examination, June/July 2015
Microprocessors

Time: 3 hrs.

Max. Marks:100

Note: *Answer any FIVE full questions, selecting atleast TWO questions from each part.*

PART - A

1   a. Draw and discuss the Register Organization of 8086 through core 2 microprocessors.
                                                                            (10 Marks)
    b. Explain the real mode memory addressing of 8086 processor.   (10 Marks)

2   a. Define paging. Discuss the memory paging with diagram.   (08 Marks)
    b. Explain Data related addressing modes of 8086, with an example.   (08 Marks)
    c. Define physical address. Discuss how physical address is generated in 8086 processor.
                                                                            (04 Marks)

3   a. Explain the following instruction with an example : i) XLAT   ii) LEA   iii) CMP
       iv) MUL   v) TEST.   (10 Marks)
    b. What are assembler directives? Explain the following assembler directives with an example
       i) PUBLIC   ii) ORG   iii) DW   iv) ASSUME.   (07 Marks)
    c. What is meant by segment override prefix? Explain with examples.   (03 Marks)

4   a. Discuss shift'and rotate instructions, with an example.   (08 Marks)
    b. Explain FAR procedure and near procedure with an example.   (06 Marks)
    c. Write an assembly level program to reverse a given string and check for palindrome
                                                                            (06 Marks)

PART - B

5   a. What are the differences between a PROCEDURE and a MACRO?   (04 Marks)
    b. Write an 8086 ALP using DOS interrupt to read a two hexadecimal number and display the
       same on monitor.   (08 Marks)
    c. Define Modular programming. Explain various phases in program development and
       execution in the context of modular programming.   (08 Marks)

6   a. Explain the functions of the following 8086 signals :   (06 Marks)
       i) ALE   ii) MN / $\overline{MX}$ iii) NMI   iv) QS0, QS1   v) RESET   vi) DT/$\overline{R}$.
    b. Indicate the signals which are different when 8086 in minimum mode and in maximum
       mode.   (04 Marks)
    c. Describe the working of 8086 in minimum mode configuration.   (10 Marks)

7   a. Discuss in brief commonly used memories.   (08 Marks)
    b. With neat diagram, explain the Linear decoding techniques.   (08 Marks)
    c. Compare and contrast the memories mapped I/O to I/O mapped I/O.   (04 Marks)

8   a. Draw and discuss the Interrupt structure of 8086.   (06 Marks)
    b. With functional block diagram, explain working principle of 8255 PPI. (08 Marks)
    c. Discuss the DMA controller operating in a microprocessor system.   (06 Marks)

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