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06EC62

Sixth Semester B.E. Degree Examination, June/July 2013
Microprocessors

Time: 3 hrs.

Max. Marks:100

**Note: Answer FIVE full questions, selecting
at least TWO questions from each part.**

PART – A

- 1 a. Explain with neat diagram, the internal architecture of 8086 microprocessor. Clearly state the function of the following:
 - i) BUS interface unit
 - ii) Execution unit
 - iii) Segment registers. (08 Marks)
- b. What is addressing mode? Explain with example the different addressing modes in 8086? (08 Marks)
- c. Explain “program status word” in 8086 with example. (04 Marks)
- 2 a. Explain template for 8086 MOV instruction. Also generate the op-code for the following instructions:
 - i) MOV AX, BX
 - ii) MOV AX, [BX]. (08 Marks)
- b. What are assembler directives? Explain the following assembler directives with examples:
 - i) EQU
 - ii) ORG
 - iii) PROC. (04 Marks)
- c. Discuss the different types of 8086 arithmetic instructions with example for each type. (08 Marks)
- 3 a. Explain REPE CMPSB instruction with example. (06 Marks)
- b. Differentiate between MACROS and PROCEDURES. (06 Marks)
- c. Write a procedure to convert a packed BCD number to its binary equivalent. Use the method of passing parameters in registers. (08 Marks)
- 4 a. Describe the action taken by 8086 when NMI pin is activated. (06 Marks)
- b. Write a subroutine to perform the following in 8086: i) Set trap flag; ii) Reset trap flag. (06 Marks)
- c. What are hardware interrupts? Write the function of atleast-five dedicated software interrupts in 8086. (08 Marks)

PART – B

- 5 a. Write an ALP to rotate stepper motor five rotation clockwise and five rotation anti clockwise direction with same speed for both the direction. Assume step angle of stepper motor is 1.8 degree. Assume rotor teeth = 200. (10 Marks)
- b. Interface an 4 × 4 keyboard and write a program to read the code of a pressed key. (10 Marks)

- 6 a. Describe with examples the integer data types in 8087 and compute the range of values that can be represented by these data types? (08 Marks)
- b. Represent 23.25 using 80 bit temporary real format use hex format for expressing the answer. (04 Marks)
- c. Explain the following instruction of 8087 with example: i) FMULP ST(1), ST; ii) FSUBP ST(1), ST; iii) FCOM ST(2); iv) FLDPI. (08 Marks)
- 7 a. Explain minimum mode configuration of 8086, with a neat diagram. (08 Marks)
- b. Differentiate between minimum mode and maximum mode. (05 Marks)
- c. Explain the operation of reset section of 8284A clock generator. (07 Marks)
- 8 a. Explain the function of the following 80386 pins:
i) $\overline{\text{LOCK}}$; ii) $\overline{\text{ADS}}$; iii) $\overline{\text{NA}}$; iv) $\overline{\text{READY}}$; v) $\overline{\text{ERROR}}$; vi) RESET; vii) $\overline{\text{D/C}}$. (07 Marks)
- b. Draw and discuss the register set of 80386 and explain a typical function of each of the register. (07 Marks)
- c. List the salient features of 80486 (06 Marks)
