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Sixth Semester B.E. Degree Examination, Dec.2015/Jan.2016
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 the internal architecture of 8086 processor and explain in brief the execution unit and bus interface unit. (10 Marks)
 - b. Explain the PSW register of 8086. (06 Marks)
 - c. List the advantages of memory segmentation of 8086. (04 Marks)

- 2
 - a. Determine the physical address resulting from the following instructions:
 - i) MOV DL, [BP+SI]
 - ii) MOV DI, [BX + 100h]
 - iii) SUB BOX, AX
 - iv) MOV [BP + DI + 5], AH
 - v) MOV AL, [5036h]
 BP = 7000h, SI = 0350h, SS = 8000h, BOX = 4000h, BX = 4FFFh, DS = 2000h
 DI = 6A00h. (10 Marks)
 - b. Opcode for MOV instruction is 100010. Determine the machine language code for the following:
 - i) MOV AL, BL
 - ii) MOV AL, [1234h](04 Marks)
 - c. What are assembler directives? Explain the significance of the following:
 - i) DW
 - ii) EQU
 - iii) ALIGN 16
 - iv) OFFSET.(06 Marks)

- 3
 - a. Write a short note on string instructions. (10 Marks)
 - b. Using table translation instruction WAP to find equivalent seven segment code for the given BCD digit. (06 Marks)
 - c. Differentiate between Macros and Procedures. (04 Marks)

- 4
 - a. What is an interrupt? Discuss the interrupt classification in 8086 with example. (07 Marks)
 - b. Explain the response to an interrupt in 8086. (07 Marks)
 - c. Write subroutines to
 - i) Set trap flag
 - ii) Reset trap flag.(06 Marks)

PART – B

- 5
 - a. Explain with a neat diagram the interfacing of a 4×4 keyboard to 8086. Draw the flow chart also. (Program not reqd.) (12 Marks)
 - b. Interface a DAC AD7523 with 8086 WAP to generate a saw tooth waveform of period 1 ms with $V_{max} = 5V$. Clock frequency of 8086 = 8 MHz. (08 Marks)

- 6
 - a. With a neat diagram explain the architecture of 8087 coprocessor. (10 Marks)
 - b. Represent the real number $(13.75)_d$ in a short real or in single precision representation. (04 Marks)
 - c. Write a program in 8087 ALP to find the area of a circle. (06 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.

- 7** a. Draw the block diagram of PCI interface bus and explain. (10 Marks)
b. Write a short note on USB. (10 Marks)
- 8** a. Explain with neat diagram the programming model of Intel 80386 registers. (10 Marks)
b. Explain the memory system of 80386 with diagram. (04 Marks)
c. Explain Branch prediction logic and cache structure of Pentium processor. (06 Marks)

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