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10EC/TE62

Sixth Semester B.E. Degree Examination, Dec.2017/Jan.2018
Microprocessors

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. With a neat diagram, explain the BIU of the 8086 microprocessor. (08 Marks)
- b. Explain memory segmentation and advantages of using segment registers. (06 Marks)
- c. Indicate the addressing modes of the destinations operand and calculate its physical address for the following instructions
 - i) MOV wordptr [BX + DI + 3456H], 8ACDH
 - ii) ADC [BP + 200H], AX
 Assume DS = 4567H, SS = 4000H, BX = 5678H, DI = CDEFH, BP = 69BOH, SP = 64AOH. (06 Marks)
- 2 a. Explain the following machine control instructions :
 - i) ESC ii) LOCK prefix iii) WAIT. (06 Marks)
- b. Explain the following directives :
 - i) ALIGN ii) ASSUME iii) EXTERN iv) SHORT v) OFFSET. (10 Marks)
- c. Write a program sequence that will reverse the contents of the 4 bytes LIST through LIST+3. (04 Marks)
- 3 a. Explain the following string instructions:
 - i) SCASB ii) LODSW iii) CMPSB iv) STOSW (04 Marks)
- b. Write an ALP to convert an ASCII coded decimal number to its binary equivalent. (10 Marks)
- c. Develop an 8086 ALP to compute ' n_r ' using recursive procedure. Assume ' n ' and ' r ' to be positive integers (n and r <= 8) and place the result in a memory word location. (06 Marks)
- 4 a. Discuss briefly the types of interrupts in 8086. (10 Marks)
- b. Write an interrupt service procedure to read characters from an ASCII keyboard on interrupt basic. (10 Marks)

PART – B

- 5 a. Interface 3×4 keyboard to 8086 microprocessor using 8255. Write an ALP with the necessary circuit diagram. (10 Marks)
- b. Discuss briefly the modes of operations of 8255 and the control word format. (10 Marks)
- 6 a. Draw and explain the bit pattern of control register 8087. (07 Marks)
- b. Convert -29.563 to long real form. (03 Marks)
- c. Write an ALP to find mean and standard deviation using 8087 instructions. (10 Marks)
- 7 a. Bring out the differences between minimum mode and maximum mode of 8086. (04 Marks)
- b. Explain the write cycle timing diagram for minimum mode. (06 Marks)
- c. Describe briefly the USB and also give the flowchart used to generate USB data. (10 Marks)
- 8 a. Explain the following with respect to Pentium processor :
 - i) Branch prediction logic ii) Cache structure iii) Super scalar architecture. (10 Marks)
- b. Write a short note on :
 - i) Special registers of 80386 processor ii) Salient features of 80486 processor. (10 Marks)

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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.