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06EC62

**Sixth Semester B.E. Degree Examination, Dec.2016/Jan.2017**  
**Microprocessors**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. Draw the block diagram of internal architecture of 8086 and explain. Clearly indicate the importance of various registers. (10 Marks)
- b. Explain the various addressing modes of 8086 with examples. (10 Marks)
- 2 a. What are assembler directives? Explain the meaning of the following directives.  
i) OFFSET ii) ASSUME iii) EXTRN iv) GROUP (08 Marks)
- b. Describe the function of following pins of 8086 (06 Marks)
- i) HOLD ii) READY iii) ALE iv)  $\overline{\text{LOCK}}$
- c. What is meant by segment override prefix? Explain with examples. (04 Marks)
- d. Identify the addressing modes of the following instructions (02 Marks)
- i) MOV AX, BP[200] ii) XCHG NUM [BX + SI], SP
- 3 a. Explain the following string instructions (10 Marks)
- i) MOVSB ii) REP iii) STOSW iv) SCASB v) CMPS
- b. Write an ALP to check whether the given string is palindrome or not and print a suitable message as "PALINDROME" or "NOT PALINDROME". (06 Marks)
- c. Differentiate between macros and procedures. (04 Marks)
- 4 a. Explain the software and hardware interrupt structure of 8086. (08 Marks)
- b. Explain the sequence of operations performed by 8086 MP when an interrupt is detected. (06 Marks)
- c. Write an ALP in 8086 read a character from keyboard and print its ASCII value on the screen using DOS interrupts. (06 Marks)

**PART – B**

- 5 a. With necessary hardware interface, write a program to rotate stepper motor one revolution in anti clockwise direction and one revolution in clockwise direction. Assume stepper motor step size is 1.8°. (10 Marks)
- b. Explain I/O mapped I/O and memory mapped I/O. (04 Marks)
- c. Explain different types of key switches used in a computer. (06 Marks)
- 6 a. Draw the formats of status and control registers of 8087 and define each bit. (08 Marks)
- b. Explain the following instructions of 8087 co-processor with suitable examples  
i) FILD ii) FXCH iii) FLDPI iv) FINIT (06 Marks)
- c. Explain the various data types that 8087 can handle. Give examples. (06 Marks)
- 7 a. Explain the features of USB. (06 Marks)
- b. Write and explain the timing diagram of memory read operation in 8086 processor operating in minimum mode. (06 Marks)
- c. Show the interface between 8086 and printer. Explain the signals of importance. (08 Marks)
- 8 a. Explain memory organization of 80386 processor. (08 Marks)
- b. Briefly explain the special registers found in 80386 processor. (06 Marks)
- c. Explain the following with respect to Pentium processors (06 Marks)
- i) Branch prediction logic ii) Cache structure.

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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 number to examiner and/or squaddies which eg. 4218 = 30, will be treated as malpractice.