

B. Tech III Year I Semester Examinations, December-2011**MICROPROCESSORS AND INTERFACING
(MECHANICAL ENGINEERING (PRODUCTION))****Time: 3 hours****Max. Marks: 80****Answer any five questions
All questions carry equal marks**

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- 1.a) Explain about physical memory organization with neat block diagram.
- b) Explain how a microprocessor differentiates between an opcode and instruction data. [8+8]
- 2.a) Explain what happens if the offset address exceeds the size of the segment? Does it wrap around the same segment or move to the segment?
- b) In an instruction `Mov AX, [BP+DI]`, both BP and DI are used as offset, what will be the default register? Explain with reason
- c) After the execution of the instruction `LEA AX,[BP+DI+50H]` give the contents of the register AX and the flags ZF,S,CF and OF. [4+4+8]
- 3.a) Discuss various branch instruction of 8086 microprocessor, that are useful for relocation?
- b) Write an assembly language program using the Logical Instructions XOR, AND and arithmetic instructions to display a number in BCD format. [8+8]
- 4.a) Explain in detail the difference between near CALL and far CALL.
- b) What is the need for intersegment and intrasegment call instructions in the 8086? Explain in detail. [8+8]
- 5.a) Write an 8086 program to delete a substring from a main string whose starting data base is 6DH and ends with 00H. Also give the new length of the string after deletion.
- b) Why is an interrupt driven I/O more efficient than programmed I/O for 8086 Microprocessor? [12+4]
- 6.a) Interface a typical 12-bit DAC with 8255 and write a program to generate a square waveform of period 10 ms. The CPU run at 5 MHz clock frequency.
- b) Explain why 8255 ports are divided into two groups? Discuss how these groups are controlled in different modes of operation? Explain different control signals and their associated pins for bi-directional I/O mode of operation? [8+8]
- 7.a) What is a transducer? How do you interface temperature transducers to 8086 processor and briefly explain the block schematic.
- b) Explain how a floppy disk controller is interfaced to an 8086 Processor with neat diagram. [8+8]
8. Write short Notes on any **TWO**
 - a) Addressing Modes of 8086
 - b) Interrupts and Interrupt Routines
 - c) Interfacing of Stepper motor to 8086. [16]

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