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# MANIPAL INSTITUTE OF TECHNOLOGY

(Constituent Institute of Manipal University)  
MANIPAL-576104



## FOURTH SEMESTER B.E (CSE) DEGREE END SEMESTER EXAMINATION 23<sup>rd</sup> MAY, 2011 SUBJ: MICROPROCESSORS (CSE 208), (REVISED CREDIT SYSTEM)

TIME: 3 HOURS

MAX. MARKS : 50

### Instructions to Candidates

- Answer any 5 full questions.
- Do not seek any clarifications from the invigilator

1A. Expand and explain the following 8086 instructions with syntax and an example each. **5m**

- i. AAA      ii. CMP      iii. IMUL      iv. SAL      v. RCR

1B. Draw the internal block of 8086. In brief, explain the bus interface unit and execution unit. **3m**

1C. In brief, explain the following assembler directives with syntax:

- i. EQU      ii. EXTRN **2m**

2A. With syntax, explain the string primitives, i. REPNE      ii. SCASB. **2m**

2B. Write an assembly language program to accept a password from the keyboard and check for its validity. (Assume the valid password to be A2B3. Also, use appropriate messages for display). **3m**

2C. If DS = 2100H, [BX] = 0158H, [DI] = 10A5H, Displacement = 1B57H, [IP] = 4144H, Calculate the effective address (EA) and physical address (PA) for the data segment using the following addressing modes. **3m**

- i. Register relative      ii. Register indirect      iii. Relative based indexed

2D. What is meant by “expanding the macro”? List the ways of passing parameters to and from a procedure. **2m**

3A. For the following function requests, specify the purpose, expected inputs and syntax for each. **5m**

- DOS interrupts, Int 21h – i. 06h      ii. 40h      iii. 2Bh  
BIOS interrupts, Int 10h – i. 01h      ii. 03h

- 3B.** With a single set of timing diagram each, explain the following modes of 8254-Timer. **3m**
- i. Mode 1 – Hardware retriggerable one-shot
  - ii. Mode 4 – Software triggered strobe.
- 3C.** Explain in brief, Interrupt Request Register (IRR) and In-Service Register (ISR). **2m**
- 4A.** With a neat diagram, explain the minimum mode configuration of 8086. **5m**
- 4B.** Explain the operational modes of 8255 – Programmable parallel port. **3m**
- 4C.** Explain the function of the following 8086 pins. **2m**
- i. DT/ $\overline{R}$       ii. HOLD      iii. READY      iv. ALE
- 5A.** Explain the following 8087 instructions: **4m**
- i. FYL2XP1
  - ii. FLDLG2
  - iii. FSTCW
  - iv. FIMUL
- 5B.** Explain the peripheral component interconnect bus and draw the system block for the personal computer that contains a PCI bus. **4m**
- 5C.** Explain in brief, the modes of the DMA controller, 8237. **2m**
- 6A.** With necessary diagrams, explain how an 80386 computes physical address when paging mode is enabled. **5m**
- 6B.** Explain the following with respect to 68000 processor. **3m**
- i. Data registers      ii. Address registers      iii. Special purpose registers.
- 6C.** Explain in brief, scheduling and the methods of scheduling. **2m**

\*\*\*\*\* *Good Luck!* \*\*\*\*\*