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MANIPAL INSTITUTE OF TECHNOLOGY

(A Constituent Institute of Manipal University)

Manipal – 576 104



SIXTH SEMESTER B.E. DEGREE END SEMESTER EXAMINATIONS – MAY 2008

SUBJECT: ADVANCEDMICROPROCESSORS (BME 306)

(REVISED CREDIT SYSTEM)

Wednesday May 21, 2008. 9a.m. to 12 Noon

TIME: 3 HOURS

MAX. MARKS: 100

Instructions to Candidates

1. Answer any FIVE full questions.
2. Draw labeled diagram and give illustrations wherever necessary.

1. (a) Give significance of programmable registers of the 8086 microprocessor. 06
(b) Enlist the 8086 maximum mode signals that replace the minimum mode signals and give the functions of each signal. 08
(c) Explain and give significance of the instructions (i) TST and (ii) SGE 06
2. (a) With illustrations explain the methods available for implementing repeated tasks in 8086 programming. 10
(b) Explain how the 80286 microprocessor translates logical address into physical address? 05
(c) What is the role played by data strobe signals and function codes of the 68000 microprocessor? Explain. 05
3. (a) Draw and explain the memory read and I/O write bus cycle signals of 8086 system in Maximum mode. 5+5
(b) What is the role of 8284 in 8086 microprocessor system? Describe. 10
4. (a) Write an assembly language program to exchange a block of data bytes of size $(100)_{10}$ available at location 5000H in DS with a block starting at location 4000H in ES. 08
(b) Explain the sequence of events that take place during the auto-vector interrupt processing sequence for $\overline{IPL}_2, \overline{IPL}_1, \overline{IPL}_0 = 010$. Assume that no other interrupts are currently active. 08

- (c) Differentiate between : 04
- (i) BIOS and DOS interrupt functions.
 - (ii) COM and EXE files.
5. (a) Draw an interface diagram to interface an 8-bit ADC with the 8086 microprocessor. Develop a program for reading the ADC, so that microprocessor reads the ADC for every 5 msec and loads the data in a memory array of 200 bytes long. 10
- (b) How the 68000 microprocessor responds to an exception? Explain RESET and BUS ERROR exceptions. 06
- (c) Explain how programmer can make use of unimplemented instructions of the 68000 microprocessor? 04
6. (a) Identify the 8086 addressing modes that are possible for the following operands: 06
- (i) CHNGE[BX] (ii) CHNGE[BX+0FH] and (iii) CHNGE[BX][SI]
- Where CHNGE is a variable.
- (b) Explain various processor control instructions of the 8086 microprocessor. 10
- (c) Explain the functions of the following DOS and BIOS interrupt functions: 04
- (i) Function 07H, INT10H
 - (ii) Function 2DH, INT21H