2006 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS,
INTERFACING THROUGH MICROPROCESSORS
(COMMON TO COMPUTER SCIENCE & ENGINEERING, INFORMATION TECHNOLOGY
AND COMPUTER SCIENCE & SYSTEMS ENGINEERING)

NOVEMBER 2006

TIME -3 HOUR
MARK – 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Discuss in detail about the multiplexing of address, data and status lines in 8086 microprocessor. Also discuss how demultiplexing is done using ALE pin.

(b) Explain what the following instructions will do and mention their addressing modes.

i. MOV CL,[BX]

ii. MOV 43H[SI],DH

iii. MOV CX,[437AH]

iv. SUB [2048],DH

v. ADD BX,59H[DI]

vi. DAA   [7+9]

2. Show the 8086 instruction or group of instructions which will :

(a) initialize the stack segment register to 4000H and stack pointer register to 8000H

(b) call a near procedure named FIXIT

(c) save BX and BP at the start of a procedure and restore them at the end of the procedure

(d) return from a procedure and automatically increment the stack pointer by 8.
                                        [8+8]

3. Develop an 8086 assembly language program to compute nCr using recursive procedure. Assume n and r to be positive integers and place the binary result in a memory word location.
                                   [16]

4. (a) Draw the circuit of wait state generation, which generation between 0 and 7 wait states and draw the corresponding timing diagram.

(b) How is an 8086 entered into an wait state ? And how many wait states can be inserted in a machine cycle.

[12+4]

5. (a) What is the advantage of DMA control data transfer over interrupt driven or program control Data transfer? Why are DMA control data transfers faster?

(b) With a neat flow diagram, explain sequence of operations for DMA data transfer.

6. (a) Design a circuit to activate a actuator, based on a bit combination given by eight switches interfaced to a microprocessor

(b) Design a interface circuit to feed numbers 0-9 through a linearly encoded switches and to display the number on a seven segment LED through a microprocessor

[8+8]

7. Explain write pre-compensation, data separation, phase locked loop and CRC in floppy disk interface.

[16]

8. (a) Explain the physical communication standards required to communicate between computer-computer communication or human-computer communication over long and short distances.

(b) Draw the circuits for driving and receiving 20mA loop signals and explain theushright