

College of Engineering, Pune
S.Y.B.Tech - Computer Engineering and Information Technology

CT-207 – MICROPROCESSOR TECHNIQUES

Date- 09/05/2012

Timing: 3 hrs

Academic Year: 2011- 12

Max. Marks: 100

END SEMESTER EXAM

Instructions:

1. Answer all Questions.
2. Draw neat diagrams wherever necessary.
3. Make appropriate assumptions if required.
4. Figures to the right indicate full marks.

		Marks
Q.1	Give the neat system schematic for interfacing following to the 8086 based system. 1. 32 KWord of RAM using 32 Kbytes RAM Chips from address 00000H onwards. 2. 16 KWord of EPROM using 16 Kbytes EPROM Chips. Ending address of the EPROM is FFFFFH. 3. 8255 in I/O mapped mode with address of Port B (PB) FF82 H. Give the addresses for each chip.	18
Q.2	A. What is bus cycle? Explain memory-read bus cycle in minimum mode of operation of 8086.	08
	B. Explain the following instructions 1. TEST AL,01 H 2. AND AL,01 H	04
	C. Describe the difference between the instructions MOV AX, 2437H and MOVAX, [2437H].	04
Q.3	A. How does 8086 respond to the interrupt on INTR pin?	06
	B. Describe the use of CAS0, CAS1 and CAS2 lines in a system with a cascaded 8259's.	04
	C. Explain operation of port A with handshaking signals in mode 2 of 8255	06

Q. 4 A. What will be the contents of registers bx, ch and dx, after the execution of following 8086 assembly language program? 10

```
.model small
.stack 100h
.data
    no    dw 0010h
    res   dw?
    factor dw 0001h
    ans   dw 0000h
    add1  dw 0000h

.code
    mov ax,@data
    mov ds,ax
    call mz
    mov res,dx

mz proc
    mov bx,no
    mov ch,04h
    mov cl,04h
    mov factor,0001h
    mov si,000ah
    mov dx,0000h

start:
    and bx,000fh
    mov ax,factor
    mov add1,dx
    mul bx
    mov dx,add1
    add dx,ax
    mov ax,factor
    mov ans,dx
    mul si
    mov dx,ans
    mov factor,ax
    mov bx,no
    ror bx,cl
    mov no,bx
    dec ch
    jnz start
    ret
mz endp
end
```

- B. Write an assembly language program in 8086 to identify prime numbers out of 10 numbers accepted from user and calculate the average of identified prime numbers. 08

OR

- B. Write an assembly language program in 8086 to calculate factorial of a given number using recursion. 08

- Q.5 A. Explain mode 3 (Square Wave Generator) and mode 4 (Software Triggered Mode) of 8253 /8254 with suitable waveforms. 10

- B. Answer the following with respect to 8279 08
- i. Right Entry Display & Left Entry Display
 - ii. Encoded Scan and Decoded Scan

- Q.6 A. Explain the operation of DMA Controller 8237 with neat system schematic. 08

OR

- A. Answer the following with respect to serial communication. 08
- i. What is the information that can be obtained from the status word of 8251?
 - ii. What is the purpose of RS232C in Serial Communication?

- B. Explain demand transfer mode and block transfer mode of 8237? 06