B.E. Electronics Engineering Fifth Semester

EN 504 - Advanced Microprocessors and Interfacing

P. Pages : 2 **GUG/W/18/1624**

Time : Three Hours * 1 2 7 8 * Max. Marks : 80

Notes : 1. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Explain the operation carried out by BIU of microprocessor 8086. **8**

b) Explain the use of control flags of μp8086. **8**

OR

2. a) Explain minimum mode of operation in μp8086. **8**

b) Identify the addressing modes for the following instructions. **8**

i) MOV AX, [5000H] ii) MOV AL, [BX] 100H

iii) MOV AX, 50H [BX] [SI] iv) MOV AX, [BX] [SI]

3. a) Write different steps performed by μp when it executes the instruction PUSH CX and PUSH SI. **8**

b) Write an assembly language program to separate even and odd numbers from 10 data bytes. **8**

OR

4. a) Draw interrupt vector table for μp8086 and explain how the interrupts of μp8086. Gives the sequence of response for interfacing. Also mention the priorities of interrupts. **8**

b) Interface two 16k×8.RAM chip with 8086 such that memory address range assigned to RAM chips is 00000H - 07FFFH, using an address decoder having only logic gates. **8**

5. a) Draw and explain the block diagram of 8255PPI. **8**

b) Interface on 8255 PPI with 8086 to work as an I/O Port. Initialize Port A as O/P Port, Port B as I/P and Port C as O/P. P_A address should be 4440H. Write assembly language program sense switch positions $SW_0 - SW_7$ connected at P_B. The sensed pattern is to be displayed on P_A to which 8 LED's are connected while the Port C lower displays number of switches out of the total 8 switches. **8**

OR

6. a) Interface 8253 PIT programmable with 8086. Show Input Output addresses. **8**

b) Design a Hardware and write an assembly language programme to generate buzzer to the bf frequency 4KHz system Clock of 8086μp is 5MHz. **8**

7. a) Explain basic features of 8259PIC. **8**

b) Show schematic connection of 1 master and 2 slaves 8259 PIC with 8086. Write initialization program to satisfy the following conditions. **8**

i) Vector type should start from 68H.
ii) Positive edge triggered.
iii) IR_4 and IR_7 of master expanded by slave.
iv) IR_6 of slave 7 should be masked.
v) The IO port address space of 8259 master and slaves should start from 80H.

OR

8. a) Explain basic features of 8279 keyboard display. **8**

b) Write an assembly language program to display 8-character stored from memory location in 8086 based system with 8279. The 8279 I/O address are 40H and 42H. The system clock of 8086 is 5MHz and 8279 operates at 100KHz. **8**

9. a) Explain 8257 DMA operation cycles. **8**

b) Show interfacing of 8257 with 8086. **8**

OR

10. a) Explain modes of operation of 8251 USART. **8**

b) Show the interfacing diagram of 8251 USART with 8086. **8**

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