Total No. of Questions : 12]

SEAT No. :

P641

[Total No. of Pages : 3

[4457] - 116

S.E (Computer Engineering) (Semester - II)

MICROPROCESSOR AND INTERFACING TECHNIQUES

(2008 Course)

Time :3 Hours] *[Max. Marks :100*

Instructions to the candidates:-

1) ***Answer three questions from section I and three questions from section II.***
2) ***Answers to the two sections should be written in separate answer books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***
5) ***Assume suitable data, if necessary.***

SECTION - I

Q1) a) Draw and explain functional block diagram of the 8086 microprocessor. **[8]**

b) Explain the flag register of 8086 microprocessor in detail with one example each. **[8]**

OR

Q2) a) Explain with a neat diagram of memory segmentation in the 8086 microprocessor. **[8]**

b) Draw and explain the memory read timing cycle of 8086 microprocessor for minimum mode. **[8]**

Q3) a) If (BX) = 0158 H Displacement = 1B57H **[8]**

(DI) = 10A5H (DS) = 2100 H

and DS is used as segment register, then calculate the EA and PA for the following addressing mode.

P.T.O

i) Direct Addressing mode.

ii) Register Indirect, assuming BX.

iii) Register addressing mode.

iv) Immediate addressing mode.

b) Explain all rotates instruction with example. **[8]**

OR

Q4) a) Explain the following assembler directives : with example. **[8]**

i) EXTRN ii) PUBLIC

iii) LABEL iv) MACRO and ENDM

b) Write an 8086 ALP to add two 16 bit BCD numbers. Write appropriate comments. **[8]**

Q5) a) Compare .com files and .exe files. Explain the procedure to generate .exe file from .asm file. **[10]**

b) What is IVT of 8086? Explain its structure in detail? **[8]**

OR

Q6) a) Draw and explain the block diagram of 8259 PIC in detail. **[10]**

b) Write the initialization instructions of 8259 A interrupt controller to meet the following specification **[8]**

i) Interrupt type 32.

ii) Edge triggered, single and ICW4 needed.

iii) Mask interrupt IR1 and IR3.

SECTION - II

Q7) a) Draw a block diagram of 8255 PPI and explain in brief. **[8]**

b) Explain BSR and I/O mode word formats of the 8255 PPI. Write a BSR control word subroutine to set bits PC7 and PC3 and reset them after 10 msec. Assume that a delay subroutine is available. Address for control word register = 83H. **[8]**

OR

Q8) a) Write instruction sequence to program 8251 for asynchronous transmission with seven data bits, 1 stop bit and no parity with 6400 baud rate. **[8]**

b) Define the following terms for D/A converters. **[8]**

i) Resolution ii) Accuracy

iii) Monotonicity iv) Conversion time.

Q9) a) Draw and explain functional block diagram of 8279. **[8]**

b) Give the control word format for 8253/54. Write a program to initialize counter 2 in mode 0 with a count of C030H. Assume address for control word register = 0BH, counter 0 = 08H, counter 1 = 09H and counter 2 = 0AH. **[8]**

OR

Q10) a) Explain the various modes of 8237 in detail. **[8]**

b) Draw and explain the following 8279 commands : **[8]**

i) Keyboard/display mode set command.

ii) Read FIFO/sensor RAM command.

Q11) a) Draw the maximum mode module of 8086 clearly showing address latches, transreceivers and clock generator. **[10]**

b) Explain the NDP's Data types with format. **[8]**

OR

Q12) Design a 8086 based system with the following specifications : **[18]**

a) 8086 working at 10 mHz.

b) 8087 Math-CO-processor for performing complicated math.

c) 32 KB EPROM using IC 2764.

d) 16 KB RAM using IC 6264.

Draw memory map and show the decoding.

❄❄❄