

B.E DEGREE EXAMINATIONS: APRIL/MAY 2014

(Regulation 2009)

Sixth Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

EEE112: Microprocessor & Microcontroller

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The number of address and data lines in 8085 microprocessor is
 - a) 32,16
 - b) 16,8
 - c) 8,16
 - d) 16,32

2. The amount of memory space that can be accessed in the 8086 processor is
 - a) 64KB
 - b) 128KB
 - c) 2MB
 - d) 1MB

3. The clock cycles required to execute IN and OUT instruction
 - a) 4
 - b) 12
 - c) 7
 - d) 10

4. The memory map of a 1Kbyte memory chip begin at the location 2000 H. specify the address of the last location on the chip.
 - a) 21FF H
 - b) 22FF H
 - c) 23FF H
 - d) 24FF H

5. The control word format is the BSR mode of 8255 controller is

0	x	x	x	Bit select				S/R
S/R		x	x	x	x	Bit Select		

0	0	0	0	S/R	Bit select				
Bit Select					S/R				

6. The device which is used to interface keyboard/display with microprocessor is
 - a) 8255
 - b) 8279
 - c) 8259
 - d) 8253

7. How many port are there in 8051 μ C ?
 - a) 2
 - b) 6
 - c) 4
 - d) 8

8. The internal RAM and ROM memory capacity of 8051 microcontroller is

a) RAM : 256 byte	b) RAM : 512 byte
ROM :4 Kbyte	ROM : 8 Kbyte

- c) RAM : 256 byte
ROM : 8 Kbyte
- d) RAM : 512 byte
ROM : 4 Kbyte
9. If the crystal used for 8051 μ C is of 4.5 MHz then determine the time for setting the timer flag
i) timer mode 0 if THX starts at 00 H
- a) 250 H
b) 270 H
c) 135 H
d) 125 H
10. With XTAL=11.0592 MHz, what value in Hex should be loaded into TH1 to have a 9600 baud rate?
- a) FD
b) FC
c) FE
d) FF

PART B (10 x 2 = 20 Marks)

11. How many memory locations can be addressed by the μ P with 14- address lines and which signal is used to demultiplex the address and data bus in 8085?
12. Differentiate between memory mapped I/O and I/O mapped I/O.
13. How are the 8085 instructions classified according to the functional categories?
14. State the difference between instruction cycle and machine cycle.
15. What is the need of interfacing 8279 with a processor?
16. How many address lines are needed for 4096 \times 8 EPROM chip interfacing?
17. What is the operation carried out when 8051 executes the instruction move A,@A+DPTR?
18. Draw the PSW format of 8051 μ C.
19. Mention the different interrupts used in 8051 μ C.
20. Write a program to initialize data pointer value as 4500 H in 8051 μ C.

PART C (5 x 14 = 70 Marks)

21. a) Draw the internal blocks of 8085 μ P and write the functions of each block.

(OR)

- b) (i) Draw the timing diagram for memory read machine cycle. (6)
- (ii) Interface 4K EPROM memory with 8085 microprocessor using 3 to 8 decoder technique. (8)
22. a) (i) Write an assembly language program to find the largest number in an array of data using 8085 microprocessor. (7)
- (ii) Illustrate the instruction set of 8085 μ P based on functions with suitable (7)

example.

(OR)

- b) (i) Write an assembly language program to find the list of prime numbers from 00H to 0FH. (7)
- (ii) Illustrate how the interrupt is performed in the processor and state all the 8085 interrupts and their vector locations with neat diagram, (7)

23. a) With the help of functional block diagram and pin diagram illustrate the organization and working of 8255 in different modes with suitable diagrams.

(OR)

- b) Draw the block diagram and elucidate the functions of each and every block of 8251. Write necessary control and code words to initialize 8251 in synchronous mode.

24. a) (i) Ten hex numbers are stored in RAM locations 50H onwards. Write an assembly language program to find the biggest numbers in the set. The biggest numbers must be stored finally in 60H using 8051 μ C. (7)
- (ii) Mention the different types of addressing modes in 8051 μ C and explain any three modes with example. (7)

(OR)

- b) Draw the architecture of 8051 μ C and explain its operations.

25. a) With a neat circuit diagram explain how a 4 \times 4 keyboard is interfaced with 8051 μ C ?

(OR)

- b) (i) Illustrate the different modes of timer with example. (7)
- (ii) Assuming XTAL = 22 MHz, Write a 8051 program to generate a pulse train of 2 seconds period on pin P2.4. Use timer1 in mode1 (7)
