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Register Number: ……..

B.E DEGREE EXAMINATIONS: NOV/DEC 2014

(Regulation 2009)

Fifth Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

EIE107**:** Microprocessor and Microcontroller

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. In memory mapped I/O addressing technique, the peripherals are addressed using

   a) 8 bit address b) 16 bit address

   c) 12 bit address d) 32 bit address

2. MVI SP,8085

   PUSH B

   POP C.

   At the end of execution of the code, the pointer is at

   a) 8086 b) 8083

   c) 8084 d) 8085

3. LDA is a_____ byte instruction and takes ____ machine cycles to complete execution

   a) 3,3 b) 4,3

   c) 3,4 d) 4,4

4. After the execution of a compare instruction , the accumulator contains

   a) The sum b) The difference

   c) The product d) The same byte that it had before execution

5. Read back command is used to read the

   a) Count in the counter b) timer control register

   c) 8255 control register d) 8259 control register

6. When 8259A programmable interrupt controller is interfaced to a 8085 processor , it provides additional ____ number of interrupts

a) 4 b) 7

c) 6 d) 8

7. Timer 1 is loaded with count 03E8h , the crystal frequency is 12 MHz and the timer is run once, the delay created is

a) 1 millisecond b) 1 second

c) 1 microsecond d) 0.1 second

8. The baud rate in serial communication is can be controlled using the bit

a) SM0 c) SM1

c) SM2 d) SMOD

9. The instruction MOV 05,00h copies

a) 00h into R_5 register b) The content of R0 register into R5 register

c) The content of the location 00h into R_0 register d) The content of R_0 register into R_5 register

10. When the 8051 is reset, the stack pointer is at _____ internal RAM address

a) 00h c) 07h

c) 0Fh d) FFh

PART B (10 x 2 = 20 Marks)

11. Differentiate between memory mapped I/O and I/O mapped I/O.
12. Which one of the following decoding techniques would you prefer and why?
    a. NAND gate with absolute decoding
    b. NAND gate with partial decoding
    c. Decoder with absolute decoding
    d. Decoder with partial decoding
13. The input given is 0Bh. Suggest an instruction that is used to convert this hexadecimal value into its decimal equivalent 11 and say how it works.
14. Give an example where rotate instructions are useful in 8085 microprocessor.
15. What is the use of a tristate buffer?
16. Frame the control word format for using counter 1 as a Binary counter in mode 3 and write instructions to load it into the control register of 8254.
17. List the sequence of operations happening when a peripheral interrupts the 8051 microcontroller.
18. Which one of the techniques would you prefer, polling or interrupt. Give reasons.

19. Store the following data 20h, 30, 40,55h in stack starting at 4500h and retrieve the same after a certain time delay using a 8085 microprocessor.

20. List any four applications of stepper motor.

PART C (5 x 14 = 70 Marks)

21. a) (i) Detail on the control signals of 8085 microprocessor (6)

(ii) Design an interfacing circuit using a 3 to 8 decoder to interface the 2732 EPROM chip (4096KB) to 8085 processor, so that the memory address of this chip ranges from 0000h to 0FFFh. (8)

(OR)

b) (i) The clock frequency of 8085 processor is 2 MHz. Calculate the time taken for the execution of STA instruction. Also draw the timing diagram. (7)

(ii) Give the pin out details of 8085 processor and explain their functions. (7)

22. a) With suitable examples explain the instruction format and addressing modes of 8085 microprocessor.

(OR)

b) (i) Write notes on stack operations. (6)

(ii) Details on the logical instructions of 8085 microprocessor. What is their significance? (8)

23. a) Explain the architecture of 8255A PPI and show how they provide the parallel port capability for 8085 microprocessors.

(OR)

b) Bring out the salient features of 8254 programmable timer and explain any four of the timer modes.

24. a) (i) Detail on the memory organization of 8051 microcontroller. (7)

(ii) Explain about the multifunctional capability of port 2 pins. (7)

(OR)

b) Show how a 8051 timer can be used both as a timer and counter. How are they configured in different modes and say what delay each mode can provide

25. a) How is keyboard interfaced with 8051? Write a sample program for reading a keyboard.

(OR)

b) Give the constructional details of stepper motor and explain how it is interfaced with a 8051 microcontroller

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