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Question Paper Code: 55303

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2019

Fifth Semester

Electrical and Electronics Engineering

15UEE503- Microprocessors and Microcontroller Programming

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10 x 1 = 10 Marks)

1. An Intel 8085 microprocessor is having _____ number of data lines. CO1-R
(a) 8 (b) 16 (c) 32 (d) 64
2. The 8085 microprocessor uses a crystal of frequency 6.25 Mhz. The T-state value is CO1-R
(a) 320 ns (b) 640 ns (c) 960 (d) 1280 ns
3. STAX B is a / an _____. CO2-R
(a) Data transfer Instruction (b) arithmetic Instructions
(c) Logical Instructions (d) IO instructions
4. Call instruction is a _____ instruction CO2-R
(a) 3 byte (b) 2 byte (c) 4 byte (d) 1 byte
5. An Intel 8051 microcontroller has _____. CO3-R
(a) 64 bytes internal RAM (b) 128 bytes internal RAM
(c) 256 bytes internal RAM (d) 4K bytes internal RAM
6. The device that generates the basic timing clock signal for the operation of the circuit using crystal oscillator is CO3-R
(a) Timing unit (b) Timing and control unit
(c) Oscillator (d) Clock generator

7. Intel 8255, under the Hand shake I/O mode of operation, we have__ modes. CO4-R
- (a) Mode 0 (b) Mode 1 (c) Mode 2 (d) Mode 3
8. The flag that increments automatically after each read or write operation to the display RAM is CO4-R
- (a) IF (b) RF (c) AI (d) WD
9. To exchange the content of A and R0 which instruction used? CO5-R
- (a) XCH A, R0 (b) XCH A, @R0 (c) XCH R0, @A (d) XCH @R0, A
10. The operations performed by data transfer instructions are on CO5-R
- (a) bit data (b) byte data (c) 16 bit data (d) all of the above

PART – B (5 x 2= 10 Marks)

11. Write the use of ALE signal. CO1- R
12. Analyze the purpose of the I/O instructions IN and OUT. CO2- R
13. List the general purpose programmable registers of an Intel 8051 microcontroller. CO3- R
14. What is an USART? CO4- R
15. Write a program to find 2's complement using 8051. CO5- R

PART – C (5 x 16= 80Marks)

16. (a) Draw and explain the architecture of an Intel 8085 microprocessor, also explain with neat diagram how it works on ALE signal. CO1-U (16)
- Or
- (b) Sketch the Timing diagram of 8085processor for MOV A,B instruction. CO1-U (16)
17. (a) Define addressing modes and its classifications. Give the examples of each classification. CO2-Ana (16)
- Or
- (b) Write an algorithm and assembly language program to add hexadecimal numbers stored in continuous memory or in an array using 8085 microprocessor. CO2- C (16)

18. (a) Explain the memory structure of an Intel 8051 microcontroller. CO3- Ana (16)
 Or
 (b) Explain the interrupt structure of 8051 microcontroller and also explain how interrupts are prioritized. CO3- Ana (16)
19. (a) (i) With a neat block diagram explain the function of 8255 PPI . CO4-U (12)
 (ii) Show the control word format of 8255 and explain how each bit is programmed. CO4-U (4)
 Or
 (b) With neat sketch explain the operation of Intel 8259 PIC. CO4-Ana (16)
20. (a) Write an 8051 assembly language program to subtract two numbers of 8 bit data stored in memory location 4200H and to 4201H. Store the difference in 4203H and sign in 4204H. CO5-U (16)
 Or
 (b) With a neat circuit diagram explain how a 4 x 4 keypad and seven segment display is interfaced with 8051 microcontroller. CO5-U (16)

