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Question Paper Code: 31534

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2016

Fifth Semester

Electrical and Electronics Engineering

01UEE504 – MICROPROCESSORS AND MICROCONTROLLER PROGRAMMING

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. How much memory locations does 8085 microprocessor can be directly addressed?
2. After an arithmetic manipulation the result stored in *A* register is *F2H*. Indicate the status of each flags of the program status word.
3. After an arithmetic operation accumulator holds *4BH*. A Decimal adjust accumulator instruction is used after the arithmetic operation. What is the value of accumulator after the decimal adjust accumulator instruction?
4. Give the operation of *XTHL* instruction used in 8085 programming.
5. Differentiate microprocessor and microcontrollers.
6. What happens when *EA* pin of 8051 microcontroller is connected to *VCC*?
7. Write control word for 8255 to configure Port A, Port C upper as input port and Port B and Port C lower as output port? Assume the Group A and B logic is operated in mode 0 and operating in I/O mode.
8. Write the bit configuration of mode instruction for asynchronous mode operated with a baud rate of $64X$ with a character length of 6 bits using an even parity and a stop bit length of 1 bit.
9. Write an ALP for 8051 microcontroller to monitor port P1.2 bit until it becomes HIGH?
10. List any two bit manipulation instruction of 8051.

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the functional block diagram of 8085 in detail. (16)

Or

(b) Design a 8085 microprocessor based system such that it should contain 16Kbyte of EPROM and 4Kbyte of RAM using two 8Kbyte EPROM and two 2Kbyte RAM. Draw the interfacing diagram and write the memory map for the same. (16)

12. (a) (i) With brief illustrations explain the addressing modes of 8085 microprocessor in detail. (8)

(ii) With an example explain the arithmetic group instruction in detail. (8)

Or

(b) (i) Write an ALP for 8085 to square the given number using look up table approach. (8)

(ii) Identify the addressing modes of the following instruction: ANA, CMP, SPHL and CPE address. (8)

13. (a) Explain the block diagram of 8051 microcontroller in detail. (16)

Or

(b) (i) Demonstrate the different ways of accessing the internal RAM of 8051. (8)

(ii) Write a program in which the 8051 gets data from P1 and sends it to P2 continuously while incoming data from the serial port is sent to P0. Assume that XTAL=11.0592. Set the baud rate at 9600. (8)

14. (a) With brief illustrations, explain the block diagram of 8255 in detail. Also discuss the different I/O modes and BSR mode with suitable control word register. (16)

Or

(b) Explain the block diagram of 8251 in detail and explain the two control words in detail. (16)

15. (a) Write an ALP for 8051 microcontroller to interface a stepper motor and to rotate it clockwise and anticlockwise for 100ms each. (16)

Or

(b) Elaborate the washing machine control using 8051 microcontroller with neat sketch. (16)