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**Question Paper Code: 55303**

B.E./B.Tech. DEGREE EXAMINATION, MAY 2024

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. When an 8085 microprocessor is reset, the address bus contains CO1- R  
(a) 0000H                      (b) 0002H                      (c) 0043H                      (d) 003C H
2. A microprocessor is a \_\_\_\_\_ chip integrating all the CO1- R  
functions of a CPU of a computer.  
(a) Multiple                      (b) Single                      (c) Double                      (d) Triple
3. In 8085 microprocessor, the RST6 instruction transfer programme CO2- R  
execution to following location  
(a) 0030H                      (b) 0024H                      (c) 0048H                      (d) 0060H
4. Why do the microprocessors possess very few bit manipulating instructions? CO2- R  
(a) Because they mostly operate on bits/ word data  
(b) Because they mostly operate on byte/word data  
(c) Both a & b  
(d) None of the above
5. The registers that contain the status information is C O3- R  
(a) Control registers                      (b) Control registers  
(c) Program status word                      (d) All of the mentioned

6. The internal RAM memory of the 8051 is CO3- R  
 (a) 32 bytes                      (b) 64 bytes                      (c) 128 bytes                      (d) 256 bytes
7. When the 8051 is reset and the  $\overline{EA}$  line is HIGH, the program counter points to the first program instruction in the CO4- R  
 (a) Internal code memory                      (b) External code memory  
 (c) Internal data memory                      (d) External data memory
8. Which components are not found on chip in a microprocessor but may be found on chip in a microcontroller CO4- R  
 (a) EPROM,USART &PORTS                      (b) EPROM & PORTS  
 (c) SRAM &USART                      (d) SRAM,EPROM &PORTS
9. Among the four groups of 8051 register banks, the number of groups that can be accessed at a time is CO5- R  
 (a) 1                      (b) 2                      (c) 3                      (d) All of the above
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. State any four pins of 8085 processor which are used to generate control and status signals. CO1- R
12. Explain the functioning of CMP instruction. CO2- R
13. How multiplication is performed in 8085 and 8051? CO3- R
14. Write down the control word of 8255 if port A is configured as input and port B is configured as output in mode 0. CO4- R
15. Specify the difference between MOV and MOVX instructions. CO5- R

PART – C (5 x 16= 80 Marks)

16. (a) With the neat diagram explain the various functional building blocks of 8085 processor. CO1- U (16)

Or

- (b) Define Vector address. List the various interrupts of 8085 processor and elucidate the use of interrupt service routine. CO1- U (16)

17. (a) Define addressing mode. Identify the addressing mode and number of bytes of the following instructions and Discuss them CO2- C (16)
- (i) LDA 8300H
  - (ii) MOV A,B
  - (iii) MVI B,FFH
  - (iv) MOV B,M
  - (v) IN 80H
  - (vi) CMA
- Or
- (b) Draw the flowchart and write an assembly language program to sort 100 bytes of data using 8085 processor. CO2- C (16)
18. (a) Draw and explain the pin out configuration of 8051 microcontroller. CO3- U (16)
- Or
- (b) Explain the interrupt structure of 8051 microcontroller and also explain how interrupts are prioritized. CO3- U (16)
19. (a) Draw the functional diagram of 8255 and explain its control word and various modes of operation. CO4- U (16)
- Or
- (b) Explain the interfacing of DAC with 8085 processor with neat diagram and write an assembly programme to generate a typical waveform. CO4- U (16)
20. (a) Draw the schematic for interfacing a stepper motor with 8051 microcontroller and write an ALP for changing speed and direction of motor. 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)

