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**Question Paper Code: 55403**

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

Fifth Semester

Electronics and Communication Engineering

15UEC503 - MICROPROCESSORS, MICROCONTROLLERS AND APPLICATIONS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. The 8086 has \_\_\_\_\_ memory segments. CO1- R  
(a) 6 (b) 8 (c) 4 (d) 10
2. Which is the highest priority interrupt? CO2- R  
(a) TRAP (b) RST 6.5 (c) RST 5.5 (d) RST 7.5
3. How are the status of the carry, auxiliary carry and parity flag affected if the write instruction MOV A,#9C CO3- R  
(a) CY=0,AC=0,P=0 (b)CY=1,AC=1,P=0 (c) CY=0,AC=1,P=0 (d)CY=1,AC=1,P=1
4. Step size is selected by which two bits? CO4- R  
(a) Vref/2 (b) Vin (c) Vref/2 & Vin (d) None of the above
5. The AVR's have 32 single-byte registers and are classified as CO5- R  
(a) 8-bit RISC devices (b) 16-bit RISC devices  
(c) 32-bit RISC devices (d) 64-bit RISC devices

PART – B (5 x 3= 15Marks)

6. Give the different segment register. CO1- R
7. Write the features of 8255A. CO2- U
8. Differentiate between program memory and data memory. CO3- U
9. Explain timer registers in 8051. CO4- R
10. Compare tinyAVR and megaAVR. CO5- U

PART – C (5 x 16= 80Marks)

11. (a) Explain with a neat sketch about the internal architecture of 8086 microcontroller with its bus interface unit. CO1-U (16)
- Or
- (b) Discuss the maximum mode configuration of 8086 with a neat diagram. Mention the functions of various signals. CO1-U (16)
12. (a) Discuss in detail about Universal Synchronous and Asynchronous Transmitter and Receiver. CO2-U (8)
- Or
- (b) Sketch the functional block diagram of 8279 and explain the function of different blocks. CO2-U (16)
13. (a) Explain with an example about the instruction set of 8051. CO3-U (16)
- Or
- (b) (i) Describe the different modes of operation of timers/counters in 8051 microcontroller. CO3-U (8)
- (ii) Write a program in 8051 to find the algebraic sum of elements an array. The size of the array is n-byte. ( $0 < n < 255$ ). CO3-App (8)
14. (a) Explain microcontroller based stepper motor control. CO4-App (16)
- Or
- (b) How will you interface 16x2 LCD display with 8051? Write an ALP in 8051 to display the message “HELLO”. CO4-App (16)
15. (a) Draw and explain the architecture of ATMEL AVR 8 bit controller. CO5-U (16)
- Or
- (b) Explain the instruction set of AVR microcontroller with examples. CO5-U (16)