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**Question Paper Code: 55403**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

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. Which has the highest priority interrupt in 8086 microprocessor? CO1- R  
(a) NMI (b) DIV 0 (c) TYPE 255 (d) Overflow
2. Which is the highest priority interrupt? CO2- R  
(a) TRAP (b) RST 6.5 (c) RST 5.5 (d) RST 7.5
3. Which of the following instructions will load the value 35H into the high byte of timer 0? CO3- R  
(a) MOV TH0, #35H (b) MOV TH0, 35H (c) MOV T0, #35H (d) MOV T0, 35H
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. Which of the following is not a single bit instruction in AVR? CO5- R  
(a) SBI (b) CBI (c) PORT (d) PIN

PART – B (5 x 3= 15Marks)

6. Draw the flag register format of 8086 microprocessor. CO1- R
7. Compare 8253 with 8254. CO2- U
8. Write an 8051 program to monitor P1 continuously. It should get out of the monitoring only if P1 = 63H. CO3- U
9. What is sample and hold circuit? Where it is used? CO4- R
10. Compare tinyAVR and megaAVR. CO5- U

PART – C (5 x 16= 80Marks)

11. (a) Explain briefly about the internal hardware architecture of 8086 microprocessor with a neat diagram. 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) Draw the block diagram of DMA controller and explain its operation. CO2-U (16)
- Or
- (b) Sketch the functional block diagram of 8279 and explain the function of different blocks. CO2-U (16)
13. (a) Explain the architecture of 8051 microcontroller with neat diagram. 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) Draw the diagram to interface stepper motor with 8051 microcontroller and explain. Write a 8051 assembly language program to run the stepper motor. 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) With neat diagram explain the architecture of Atmel AVR microcontroller. CO5-U (16)
- Or
- (b) Explain the instruction set of AVR microcontroller with examples. CO5-U (16)