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Question Paper Code: 94425

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

Fourth Semester

Computer Science Engineering

19UEC425– Microprocessors & Microcontroller

(Regulations 2019)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. In which T state does the CPU sends the address to memory or I/O and the ALE signal for de-multiplexing. CO1-U
(a) T1 (b) T2 (c) T3 (d) T4
2. How many bits of data can be transferred between the 8255 PPI and the interfaced device at a time? CO1-U
(a) 16 bits (b) 12 bits (c) 8bits (d) None of the above
3. What is the bit size of the 8051 microcontroller? CO1-U
(a) 8 bit (b) 4 bit (c) 16 bit (d) 32 bit
4. Which pin of the LCD is used for adjusting its contrast? CO1- U
(a) Pin no 1 (b) Pin no 2 (c) Pin no 3 (d) Pin no 4
5. What is the execution speed of instructions in PIC especially while operating at the maximum value of clock rate? CO1- U
(a) 0.1 μ s (b) 0.2 μ s (c) 0.4 μ s (d) 0.8 μ s

PART – B (5 x 3= 15 Marks)

6. If the stack segment register contains 3000H and the stack pointer register contains 8434H, what is the physical address of the top of the stack? CO2-App
7. Write a program to find square and cube of a given number using 8051 microcontroller CO2-App
8. Why Port 0 needs pull-up resistors? CO1- U

9. How the stepper motor speed is controlled? CO1-U
10. How do you make a port as I/P & O/P port in aurdino micro controller?. CO1-U

PART – C (5 x 16= 80 Marks)

11. (a) The numbers in ASCII codes are stored in A1 and A2. Subtract A2 from A1, convert the result in ASCII and store in A3 CO2-App (16)
 Or
 (b) Encode an assembly language program to sort array of data in ascending order. CO1- U (16)
12. (a) Explain in detail about DMA controller with a neat sketch. CO1- U (16)
 Or
 (b) List the major components of the 8279 keyboard/ display interface and explain their functions, with neat diagram CO1- U (16)
13. (a) Describe the different modes of operation of timer in 8051 with its registers. CO1- U (16)
 Or
 (b) Explain about the memory organization and special function registers in 8051 microcontroller. CO1- U (16)
14. (a) With neat circuit diagram explain how 4x4 keyboard is interfaced with 8051 microcontroller. CO1- U (16)
 Or
 (b) Draw the schematic for interfacing a stepper motor with 8051 microcontroller and explain it.. CO1- U (16)
15. (a) What are the functional blocks available in aurdino microcontroller ? Explain with a block diagram. CO1- U (16)
 Or
 (b) Explain the function of aurdino microcontroller instructions for performing arithmetic and logical operations with suitable example. CO1- U (16)