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Question Paper Code: 95804

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

Fifth Semester

Information technology

19UIT504– Microprocessor Based System Design

(Regulations 2019)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Write a program to add a data byte located at offset 0500H in 2000H segment to another data byte available at 0600H in the same segment and store the result at 0700H in the same segment CO2-App
2. Write an assembly language program to load the accumulator with a constant value. CO2-App
3. Name any four flags of 8086 and explain those flags in detail CO1- U
4. What will happen when a DMA request is made, while the CPU is performing a memory or I/O Cycles? CO1- U
5. What are the modes used in keyboard modes and in display modes? CO1- U
6. How Many Ways the Keyboard is Interfaced with the CPU? CO1- U
7. Draw the port 0 and port 1 of 8051 microcontroller CO1- U
8. Draw all the port in 8051 Microcontroller CO1- U
9. Draw the pin diagram needed for LCD display interface CO1- U
10. Draw the pin diagram needed for stepper motor CO1- U

PART – B (5 x 16= 80 Marks)

11. (a) Explain the internal hardware architecture and pin representation of 8086 microprocessor with neat diagrammatical explanation CO1-U (16)
Or
(b) Explain the various addressing modes of 8086 microprocessor with examples? CO1-U (16)

12. (a) Write an 8086-assembly language program and algorithm for searching the largest & smallest data in the array and also explain the executional output with neat diagrammatical representation CO2- App (16)
- Or
- (b) Write an assembly language program and algorithm in 8086 to do the multiplication & division using two 16-bit number and also explain the execution output(I/O Memory Allocation) with neat diagrammatical representation CO2- App (16)
13. (a) Analyse the Implementation of Smart traffic light control system using 8086 by comparing the components required based on minimal in cost, fast in execution, accuracy, feasibility and also draw the circuit diagram with related assembly language program for the above scenario CO3- Ana (16)
- Or
- (b) Analyze the address decoding techniques in memory & IO interfacing, also explain the techniques followed in each interfacing in detail with neat diagrammatical explanation CO3- Ana (16)
14. (a) Find the value for TMOD if we want to program Timer 0 in mode 2, use 8051 XTAL for the clock source, and use instructions to start and stop the timer. And also explain in detail about timer/counter with neat diagrammatical explanation CO2-App (16)
- Or
- (b) Find the amount of time delay in the DELAY subroutine generated by the timer. Assume that XTAL = 11.0592 MHz. And also, to explain in detail about the Interrupt handling in 8051 Microcontroller CO2-App (16)
15. (a) Write an ALP using 8051 for a stepper motor drive and explain its principles of Operation with neat circuit diagram CO2-App (16)
- Or
- (b) Write the ALP for arithmetic Operations of two 8-bit numbers (Addition, Subtraction, Multiplication and Division) using ARM processor. And also draw the architecture of ARM processor with description CO2-App (16)