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ANNA UNIVERSITY :: CHENNAI – 600 025

MODEL QUESTION PAPER

V-SEMESTER

B.E. ELECTRONICS AND COMMUNICATION ENGINEERING

EC331 - MICROPROCESSOR AND ITS APPLICATIONS

Time: 3hrs **Max Marks: 100**

Answer all Questions

PART – A (10 x 2 = 20 Marks)

1. State the function of HOLD pin in 8085.
2. Write 8085 assembly language instructions to store the contents of the Flag Register in memory location 2000H.
3. Explain DJNZ instructions of Intel 8031 Micro controller.
4. Determine the contents of the accumulator after the execution of the following program segments
   MOV A,# 3CH
   MOV R4,66H
   ANL A,R4
5. State the function of Direction flag in 8086
6. Describe the difference between the instructions MOV AX, 2437H and MOV AX, [2437H]
7. How does Port C of 8255 differ from ports A and B.
8. Explain the function of in-service register in 8259 programmable interrupt controller.
9. Draw a circuit to interface a stepper motor winding to a microprocessor port bit using power MOSFET
10. Why Gray code is used in Shaft angle encoder.

PART – B (5 x 16 = 80 Marks)

11.i) Draw the circuit diagram of an 8085 system having a 4 KB EPROM and 8 KB RAM ICs. The starting address of the EPROM is 0000H and that of RAM is 8000H. The address decoder circuits should be clearly shown.

ii) Write a subprogram using 8085 assembly language to multiply two 8 bit binary numbers by repeated addition.

12.a)i) Determine the value of the accumulator after the execution of instructions A:,B:, C: and D:

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        MOV 40H , #88H
        MOV R0 , #40H
A:      MOV A , R0
B:      MOV A, @R0
C:      MOV A, 40H
D:      MOV A, #40H
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ii) With neat diagram explain the timer / counter functions in 8051 Micro Controller.

(OR)

12.b) Using ports P_0 and P_1 of 8051 micro controller design an 8 digit 7 segment multiplexed display system. Use suitable driver circuit and give flowchart for the software involved.

13.a)i) With neat diagram explain how the memory is interfaced to 8086 as odd and even page.

ii) Write an 8086 subroutine to test a system in address 00200H- 07FFFH.

(OR)

13.b) Describe in detail the memory management functions in Intel 80286/80386 Processor

14.a) With block diagram describe the working of a DMA controller.

(OR)

14.b) With a neat diagram describe how the DAC 1408 can be interfaced to the micro controller 8031.Using this hardware write 8031 assembly language to generate a Triangular wave.

15.a) Using DC servomotor and shaft angle encoder as sensor design a Microprocessor based position control system.

(OR)

15.b) Describe how a closed loop microprocessor based process control system can be implemented by using digital PID control algorithm.