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Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code: U4806

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

Fourth Semester

Information technology

21UIT406 MICROPROCESSOR BASED SYSTEM DESIGN

(Regulations 2021)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. How many address lines are available in 8086   CO1-U

   (a) 16   (b) 20   (c) 8   (d) 40

2. SOP Stands for   CO1-U

   (a) Segment override prefix   (b) Segment data register

   (c) Segment over predefine   (d) Segment over program

3. What is the operation of RD Signal   CO1-U

   (a) High   (b) Low   (c) both (a) & (b)   (d) None of the above

4. Single CPU is used for ----------------   CO1-U

   (a) Closely Coupled   (b) Loosely Coupled   (c) Coprocessor   (d) Multiprocessor

5. The Rate at which the bits are transmitted bits per second is called   CO1-U

   (a) band   (b) Transmission   (c) Serial   (d) Baud

6. The electronic circuit that translates analog to digital signal is called   CO1-U

   (a) ADC   (b) DAC   (c) DC   (d) AC

7. What is the result of the following arithmetic operation in the 8051   CO2-App
   microcontroller?

    MOV A, #50H
   MOV B, #20H
   ADD A, B
   (a) A = 70H   (b) A = 30H   (c) A = 20H   (d) A = 50H

8. Which one is SFRs   CO1-U

    (a) PSW   (b) SBUF   (c) PCON   (d) ALL

9. Serial data buffer is a   CO1-U

    (a) SFR   (b) Timer   (c) SHR   (d) LHR

10. Which mode timer 2 operates as free running clocks   CO1-U

    (a) Auto reload mode   (b) Auto mode

    (c) Capture mode   (d) capture auto mode

PART – B (5 x 2= 10 Marks)

11. What are the different types of addressing modes of 8086 instruction set?   CO1 -U

12. What are the functions of status pin in 8086?   CO1 -U

13. Find the control word format for BSR Mode   CO1 -U

14. Name the five interrupt sources of 8051   CO1 -U

15. Compare polling & Interrupt.   CO1 -U

PART – C (5 x 16= 80 Marks)

16. (a) List out the various types of Addressing modes in 8086 CO1 -U   (16)
        microprocessor and also explain each mode with suitable example.

<p align="center">Or</p>

    (b) Explain in detail about Data transfer instruction and also write a CO1 -U   (16)
        sample program on LEA instruction (Load Effective Address)
        with detailed description.

17. (a) Illustrate the configuration of loosely coupled system and closely CO1 -U   (16)
        coupled system

<p align="center">Or</p>

    (b) Draw the architecture diagram for System Bus Structure and CO1 -U   (16)
        explain in detail about the bus connectivity in System Bus
        Structure

18. (a) Explain the internal hardware architecture and pin representation CO1 -U   (16)
        of 8259 PIC Microprocessor with neat diagrammatical
        explanation.

<p align="center">Or</p>

(b) Explain how DMA operations are performed in 8257 DMA CO1 -U   (16)
controller using a structural diagram.

19. (a) List out various types of addressing modes in 8051 and explain in CO1 -U   (16)
detail with suitable examples.

<div align="center">Or</div>

(b) With a neat diagram, explain any 7 groups in Special Function CO1 -U   (16)
Registers of 8051 Microcontroller.

20. (a) Explain in detail about the data conversion in Digital to Analog CO2-App   (16)
interfacing and also draw the architecture diagram of 8051
Connection to DAC808.

<div align="center">Or</div>

(b) What is Interrupt Vector Table (IVT) in 8051 microcontroller? CO2-App   (16)
Explain them with neat tabulation. Also list out the applications,
advantage and disadvantage by using interrupt.

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