Reg. No. :

Question Paper Code: 1214311

B.E. / B.Tech. DEGREE EXAMINATIONS, NOV / DEC 2024
Fourth Semester
Biomedical Engineering
U20EC407 – MICROPROCESSORS AND MICROCONTROLLERS
(Common to Computer Science and Engineering)
(Regulation 2020)

Time: Three Hours   Maximum: 100 Marks

Answer ALL questions

PART – A   (10 x 2 = 20 Marks)

1.   What are the different types of addressing modes of 8086 instruction set?

2.   Compare Procedure & Macro.

3.   Distinguish between minimum and maximum mode.

4.   Compare closely coupled and loosely coupled configurations.

5.   State the advantage and disadvantage of parallel communication over serial communication.

6.   Define key debounce.

7.   Tell the addressing modes of 8051.

8.   List the features of 8051 microcontroller.

9.   What is meant by a serial data buffer?

10. Define watch dog timer.

PART – B   (5 x 16 = 80 Marks)

11. (a) (i) Explain briefly about the internal hardware architecture of 8086 microprocessor with neat diagram.   (10)

    (ii) Discuss the instruction set of 8086 in detail.   (6)

(OR)

   (b) (i) Elaborate in detail about the interrupts and interrupt service routines of 8086.   (10)

    (ii) Develop an assembly language program to find the sum of numbers in an array of 10 element using 8086 instruction set.   (6)

12. (a) (i) Discuss the maximum mode configurations of 8086 with neat diagram. Mention the functions of each signals. (10)

(ii) Examine the multiprocessor configuration of 8086. (6)

(OR)

(b) (i) Demonstrate in detail about the closely coupled configuration of the multiprocessor system with a suitable diagram. (10)

(ii) Explain the system bus structure of 8086. (6)

13. (a) (i) Construct the functional block diagram of 8259 and explain the function of each in detail. (10)

(ii) Explain the block diagram of alarm controller in detail. (6)

(OR)

(b) (i) Design a traffic light control system using 8086 Microprocessor interface with a neat diagram. (10)

(ii) Illustrate in detail about DMA controller with a diagram. (6)

14. (a) Elaborate with neat sketch and explain the architecture/ functional block diagram of 8051 microcontroller. (16)

(OR)

(b) (i) Demonstrate in detail about the Data transfer instructions and Program control instructions of 8051 microcontroller. (10)

(ii) Develop an assembly language program to find the sum of any two 16-bit data using 8051. (6)

15. (a) (i) Construct the block diagram of Intel 8051 timer/counter and explain its different modes of operations. (10)

(ii) Compare PIC microcontroller and ARM processor. (6)

(OR)

(b) Elaborate with neat sketch to interface a stepper motor with 8051 microcontroller and also write its ALP to run the stepper motor in both forward and reverse direction with delay. (16)

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