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Question Paper Code : 50500

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023

Fourth/Fifth/Sixth Semester

Electronics And Communication Engineering

EC 8691 – MICROPROCESSORS AND MICROCONTROLLERS

(Common to: Biomedical Engineering/Computer Science and Engineering/Computer and Communication Engineering/Medical Electronics/Artificial Intelligence and Data Science/Information Technology)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the interrupts present in 8086.
2. State the advantages of the MOVS and CMPS instructions over the MOV and CMP instructions when working with strings in 8086.
3. What is coprocessor?
4. Name few advanced microprocessors.
5. State the uses of programmable interval timer.
6. Distinguish between half – duplex and full – duplex mode of transmission.
7. In 8051, calculate the baud rate for the serial port in mode – 0 for a 6 Megahertz crystal.
8. In 8051, find the value of the A and CY flags after executing the following code
MOV A, #9CH
ADD A, #63H
9. Compare microprocessors with microcontrollers.
10. To get a 2 – ms delay, what number should be loaded into TH, TL using mode 1 of 8051? Assume that XTAL = 11.0592 MHz

PART B — (5 × 13 = 65 marks)

11. (a) Explain the concept of linking and relocation. Specify its importance in modular programming.

Or

- (b) Discuss the different addressing modes of 8086 microprocessor with suitable examples.

12. (a) Draw and explain the typical maximum mode configuration of 8086.

Or

- (b) Elaborate on the concept of I/O programming in 8086.

13. (a) Draw the block diagram of DMA controller and explain its operations.

Or

- (b) Explain different modes of operation of 8255.

14. (a) With neat sketches, explain the architecture of 8051 microcontroller.

Or

- (b) Explain the various addressing modes of 8051 microcontroller with suitable examples.

15. (a) Explain how the LCD and Keyboard can be interfaced with 8051 microcontroller.

Or

- (b) Discuss the 8051 serial port programming in assembly language.

PART C — (1 × 15 = 15 marks)

16. (a) Describe the process involved in the case study of traffic light controller using 8086. Explain the various I/O interfaces involved in the design of traffic light control in a four-way intersection road.

Or

- (b) Explain the basic concept of stepper motors and the importance of step angles and how it can be interfaced with an 8051 microcontroller.