Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : **86569**

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Fifth Semester

Electronics and Communication Engineering

EC 1301 – MICROPROCESSOR AND MICROCONTROLLER

(Common to Sixth Semester – Electrical and Electronics Engineering, Electronics and Instrumentation Engineering and Instrumentation and Control Engineering)

(Regulations 2008)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is T state? How many T states are required for a CALL function?

2. What is the function of XCHG instruction?

3. Distinguish asynchronous and synchronous data transmission.

4. Distinguish RS-232C and RS-485 standards.

5. State the significance of LOCK signal in 8086.

6. What is the purpose of segment registers in 8036?

7. Mention the features of 8051 microcontroller.

8. How the program memory is organized in 8051 based system?

9. Show how the CPU would subtract 05H from 43H in 8051 microcontroller. Write its consequences.

10. What is the function of register select (RS) in the LCD interfacing?

PART B — (5 × 16 = 80 marks)

11. (a) Explain the various machine cycles supported by 8085. (16)

Or

(b) Write a program to count from 0 to 9 with a one second delay between each count. At the count of 9, the counter should reset itself to 0 and repeat the sequence continuously. Use register pair HL to set up the delay and display each count at one of the output ports. Assume clock frequency of the 8085 microprocessor as 1 MHz. (16)

12. (a) With neat block diagram, explain the function of 8279 programmable keyboard/display interface. (16)

Or

(b) Draw the block diagram of 8255 programmable peripheral interface and explain the different modes of operation with their control word format.

(16)

13. (a) (i) Explain the different instruction formats for 8086 CALL and RET instructions. (8)

(ii) Describe the assembler directives: Define byte (DB), Define doubleword (DD), Define Quadword (DQ) and Define ten bytes (DT).

(8)

Or

(b) Draw the internal architecture of Intel 8086 microprocessor and explain.

(16)

14. (a) (i) Describe the memory structure of 8051. (10)

(ii) Explain the 8051 interrupts. (6)

Or

(b) (i) Discuss the timers and counters in 8051. (10)

(ii) Write a brief note on the operating modes of the serial port. (6)

15. (a) (i) Write 8051 ALP to read data from port 1 when negative edge triggered at INT0 and supply the data to port 2 by masking the upper 4 bits. (8)

   (ii) Write 8051 ALP to transmit 'Hello World' to PC at 9600 baud rate for an external crystal frequency of 11.0592 MHz. (8)

Or

(b) Draw the schematic diagram for interfacing a stepper motor with 8051 micro controller and write 8051 ALP for changing speed and direction of motor. (16)

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