Reg. No. : [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

Question Paper Code : 51211

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Sixth Semester

Electrical and Electronics Engineering

EC 1301 — MICROPROCESSORS AND MICROCONTROLLERS

(Common to Electronics and Instrumentation Engineering/Instrumentation and Control Engineering and Fifth Semester – Electronics and Communication Engineering)

(Regulation 2008)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the need for ALE signal in 8085 microprocessor?

2. What is masking and why it is needed?

3. List the operation modes of 8255.

4. How a keyboard matrix is formed in keyboard interface using 8279?

5. State the significance of LOCK signal in 8086.

6. What is the purpose of segment registers in 8086?

7. Mention the features of 8051 microcontroller.

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

9. Write a program to perform multiplication of two numbers using 8051.

10. What is subroutine?

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 functions of 8251. (16)

Or

(b) (i) What are the different modes of I^2 C Bus? Explain in detail. (8)

(ii) What is GPIB? Explain in detail. (8)

13. (a) (i) Describe the shift instructions and rotate instructions in 8086 with an example. (8)

(ii) Discuss the functions of the signals HLDA, RQ/GTO, DEN and ALE in 8086 processor. (8)

Or

(b) How the interrupt is handled by 8086 microprocessor? Explain in detail. (16)

14. (a) With a neat diagram, describe the architecture of 8051. (16)

Or

(b) Elucidate the function and operating modes of timer in 8051. (16)

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)

———————