Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 31233

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Fifth Semester

Electrical and Electronics Engineering

080280042 — MICROPROCESSOR AND MICROCONTROLLERS

(Common to 080280034 — Microprocessor and Microcontrollers for B.E. Part Time Fourth Semester Electrical and Electronics Engineering)

(Regulation 2008)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Identify the type of addressing, number of T states in each of the instruction given (a) STA 2500_H (b) JC 4100_H.
2. List the various interrupts associated with 8055.
3. State the function of 8259 PIC.
4. Define N-key lock out and 2-key roll over.
5. Give example for based Index Addressing mode and brief.
6. Differentiate between minimum mode and maximum mode architecture of 8086.
7. List the salient features of 8051 micro controller.
8. Find the time duration for one state and 1 machine state if a 6 MHZ crystal is connected to 8051.
9. Determine the amount of current required to drive as LED.
10. Draw the DC motor drive circuit and state the need for it.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss the function of various pins of 8085. (8)

(ii) Draw the schematic and explain how address and data are demultiplexed in 8085. (8)

Or

(b) (i) Differentiate between (1) CALL instruction and JUMP instruction (2) CMP M and SUB M instruction. (4 + 4)

(ii) Draw the timing diagram for instruction RSTn and explain. (8)

12. (a) Explain the features of 8255 PPI. Draw the interface schematic to connect a 4 × 4 matrix keyboard to Port C lower and Port C upper in I/O mapped mode in MODE O.

Or

(b) (i) Explain the various priority modes of 8259. (8)

(ii) Draw the functional block diagram of 8253 Timer/counter and discuss the salient features. (8)

13. (a) (i) Discuss the memory organisation and I/O organisation of 8086. (10)

(ii) Compare minimum mode and maximum mode operation of 8086.

Or

(b) (i) Explain the functions of HLDA, $\overline{DEN}$, $\overline{RQ_0}$ /GT0 and BHE signals in 8086. (8)

(ii) Elaborate on the memory access mechanism in 8086. (8)

14. (a) Describe the timer operation of 8051 in MODEO and MODE 1 with specific example and schematic.

Or

(b) (i) Discuss the dual functions of PORT 3 in 8051. (8)

(ii) How can the baud rate of serial data transfer in 8051 varied? Explain. (8)

15. (a) Draw with schematic

(i) Interfacing DAC 0800 with 8051 and program to generate a saw tooth signal.

(ii) Application of 8051 to control the stepper motor. (8 + 8)

Or

(b) (i) With circuit, show how temperature sensor is interfaced? (8)

(ii) Explain the speed control of DC motor. (8)
