Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 31364

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

Fifth Semester

Electronics and Communication Engineering

EC 2304 /EC 54 — MICROPROCESSORS AND MICROCONTROLLERS

(Regulation 2008)

(Common to PTEC 2304 – Microprocessors and Micro controllers for B.E.
(Part-Time) Fifth Semester Electronics and Communication Engineering –
Regulation 2009)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Why is the 8086 memory divided into odd and even banks?

2. What do you mean by Segment Override Prefix?

3. What are the 8086 instructions used for ASCII arithmetic?

4. List the various string instructions available in 8086.

5. State the importance of sample-and-hold circuit.

6. List the applications of Programmable Interval Timer.

7. How do you place a specific value in the DPTR register?

8. Which of the 8051 ports need pull-up registers to functions as an I/O port?

9. Why are relays that use coils called electromagnetic relays?

10. What do you mean by 12C standard?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Describe the hardware architecture of 8086 microprocessor with neat diagram. (10)

    (ii) What are the differences between memory mapped I/O and I/O mapped I/O? (6)

Or

    (b) (i) How the interrupt vector is handled in 8086? (8)

    (ii) Draw and explain the timing diagram of write cycle in 8086 in minimum mode. (8)

12. (a) (i) What do you mean by assembler directives? Explain SEGMENT, TYPE, OFFSET with suitable examples. (8)

(ii) Write an 8086 ALP to check whether the given string is palindrome or not. (8)

Or

(b) (i) Write an 8086 ALP to separate odd and even numbers in a given array. (6)

(ii) Explain the data transfer group and logical group of 8086 instructions with necessary examples. (10)

13. (a) With neat block diagram explain the 8255 programmable Peripheral Interface and its operating modes. (16)

Or

(b) (i) Draw and explain the block diagram of A to D converter. (8)

(ii) How the CRT terminal is interfaced with a micro processor? (8)

14. (a) (i) Explain the architecture of 8051 microcontroller with neat diagram. (10)

(ii) Explain the TMOD function register and its timer modes of operations. (6)

Or

(b) (i) Write a brief note on external data move operations in 8051. (6)

(ii) Write an 8051 assembly language program to add three BCD numbers stored in internal RAM locations 25H, 26H and 27H and put the result in RAM locations 31H (MSB) and 30H (LSB). Use register R_0 to store the intermediate result. (10)

15. (a) (i) Explain the block diagram of washing machine control system. (10)

(ii) How do you interface RTC with $\mu p / \mu c$? (6)

Or

(b) (i) Draw the diagram to interface a stepper motor with a 8051 microcontroller and explain. Also write an 8051 ALP to run the stepper motor in both forward and reverse direction with delay. (10)

(ii) What is PWM? Explain in detail. (6)

_____