Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 30949

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY, 2019.

Fifth Semester

Electronics and Communication Engineering

EC 2304 — MICROPROCESSORS AND MICROCONTROLLERS

(Regulation 2008)

(Common to PTEC 2304 — Microprocessors and Microcontrollers for
B.E. (Part-Time) Fifth Semester — ECE – Regulation 2009)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. When is the 8086 processor in minimum mode and maximum mode?

2. Define Segment Override Prefix.

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

4. List the various string instructions available in 8086.

5. What is sample-and-hold circuit?

6. State the applications of programmable interval timer.

7. List the SFRs involved in interrupt programming of 8051.

8. Why is it necessary to have external pull-up for port O in 8051?

9. Write about the design steps involved in using microcontroller for Stepper motor.

10. State the significance of using microprocessors in interfacing traffic limit control.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss the different types of interrupts in 8086. (8)

       (ii) Describe how memory is accessed in 8086 with suitable diagram.
(8)

Or

(b) (i) Explain the internal architecture of 8086 microprocessor with neat diagram. (10)

       (ii) Explain the 8086 basic bus cycle timing diagram. (6)

12. (a) (i) Develop a program to transfer 10 bytes of data from memory location starting from 2000H. (8)

       (ii) Describe program location control directives with suitable examples. (8)

Or

(b) (i) Develop a program to multiply two 16 bit numbers stored in P1 and P2. (8)

       (ii) Explain rotate and shift instructions with suitable examples. (8)

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 CPT terminal is interfaced with a micro processor? (8)

14. (a) (i) Explain the architecture of 8051 microcontroller with neat diagram.
(12)

       (ii) Write briefly about the operating modes for serial port of 8051 microcontroller. (4)

Or

(b) (i) Write an 8051 ALP to create a square wave of 66% duty cycle on bit 3 of port 1. (6)

       (ii) Describe the different modes of operation of timers/counters in 8051 with its associated registers. (10)

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15. (a) (i) With a neat diagram explain washing machine control using microcontroller. (8)

(ii) With a diagram explain the DC motor control using 8051 microcontroller. (8)

Or

(b) (i) Explain stepper motor control using 8051 microcontroller. (8)

(ii) With a neat diagram explain the RTC interfacing using I²C standard. (8)

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