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Question Paper Code : 73453

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Fifth Semester

Electronics and Communication Engineering

EC 2304/EC 54 – MICROPROCESSORS AND MICROCONTROLLERS

(Regulations 2008)

(Common to PTEC 2304 – Microprocessors and Microcontrollers for
B.E (Part-Time) Fifth Semester—Electronics and Communication Engineering–
Regulations 2009)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is a Tristate bus?

2. What is direct memory access?

3. List the flags in 8086 and state its functions.

4. Identify the addressing modes in the following instructions.

   AND AL, BL

   SUB AL, 24H

   MOV AL, (BP)

   MOV CX, 1245H.

5. What do you mean by sample-and-hold circuit?

6. List the major functions performed by CRT interface.

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. What do you mean by RTC?

10. State the importance of relay coils.

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) Explain the various assembler directives with suitable examples. (8)

    (ii) Write a 8086 ALP to arrange the elements in an array of 10 elements in ascending order. (8)

Or

   (b) (i) Discuss the data movement and program control instructions of 8086. (10)

    (ii) Write an 8086 ALP to find the sum of numbers in the array of 10 elements. (6)

13. (a) (i) Explain the function of Programmable Peripheral Interface – Intel 8255. (8)

    (ii) Draw a block diagram to interface a Analog to Digital Converter (ADC) with a microprocessor and explain its working. (8)

Or

   (b) (i) Draw a schematic to interface keyboard and display with 8085 using 8255 and explain. (8)

    (ii) Write notes on Programmable Interval Timers 8253 and 8254. (8)

14. (a) Explain in detail the memory organization of 8051 microcontroller. (16)

Or

   (b) (i) Briefly explain the data transfer instructions available in 8051 microcontroller. (8)

    (ii) Using timers in 8051 write a program to generate square wave of 100 ms, 50% duty cycle. (8)

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15. (a) (i) Draw and explain the block diagram of traffic light control system.
(10)

(ii) Briefly discuss the features of RTC device. (6)

Or

(b) 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. (16)