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

Question Paper Code : X 60452

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
Fifth Semester
Electronics and Communication Engineering
EC 2304/EC 54 – MICROPROCESSORS AND MICROCONTROLLERS
(Regulations 2008)
(Common to PTEC 2304 – Microprocessors and Micro Controllers 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. 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 BCD arithmetic ?

4. What are the contents of AL and CY after the execution of the following segment ?
   MOV BL, D5H
   RCL BL, 3
   MOV AL, BL

5. What is key debouncing ? What are the methods to detect the debouncing ?

6. State the signals that govern the operation of the printer.

7. What happens in power down mode of 8051 microcontroller ?

8. What are the different ways of operand addressing in 8051 ?

9. What is PWM ?

10. Give the schematic to interface a relay with microcontroller.

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 an 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) With neat block diagram, explain the 8255 Programmable Peripheral Interface and its operating modes. **(16)**

(OR)

b) Draw and explain the block diagram of 8254 Programmable Interval Timer. Also explain the various modes of operation. **(16)**

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)**

15. a) i) Draw a circuit schematic for washing machine control using 8051. **(8)**

ii) Explain in detail about the RTC Interfacing using 12C Standard using microcontroller. **(8)**

(OR)

b) With a complete example, explain the design of Traffic Light Controller using Microcontroller and Microprocessor. **(16)**