13085

Code : 15EC42T

Register Number | | | | | | | | | | |

IV Semester Diploma Examination, Oct./Nov.-2019

MICROCONTROLLERS AND APPLICATIONS

Time : 3 Hours] **[Max. Marks : 100**

Instructions : (i) Answer any **six** questions from Part – **A**. (5 × 6 = 30 marks)

(ii) Answer any **seven** full questions from Part – **B**. (7 × 10 = 70 marks)

PART – A

1. List the features of 8051 microcontroller. **5**

2. Classify the instruction according to its functions and give an example for each. **5**

3. Explain the following instructions : **5**
   (i) NOP
   (ii) DAA
   (iii) ORL
   (iv) ADDA, #55H
   (v) RETI

4. Write the C statements to do the following tasks : **5**
   (i) To mask the d^3 and d^5 bits of P_0.
   (ii) To toggle the d^7 and d^3 bits of P_2

5. Explain the bit structure of IP register. **5**

6. Explain the TCON register. **5**

7. Explain the significance of SBUF register. **5**

8. Sketch the schematic for interfacing DC motor to 8051. **5**

9. With the help of schematic diagram, explain triangular wave generation using DAC. **5**

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PART – B

10. Explain the architecture of 8051 microcontroller. 10

11. (a) Explain PSW register of 8051 μC. 5
    (b) List the applications of microcontrollers. 5

12. Write an ALP to find smallest to 'n' 8 bit numbers. 10

13. (a) Write an ALP to send values 0 to 4 to port P_2. 5
    (b) Write an ALP to toggle the bit 1 of port P_0 continuously. 5

14. (a) Write a 8051 C program to convert unpacked BCD to ASCII and to display it on P_0. 5
    (b) Write a 8051 C program to convert ASCII digits '4' and '7' into packed BCD and to display on port P_1. 5

15. (a) List the advantages and disadvantages of using 8051 C. 5
    (b) Explain the different data types available in 8051 C. 5

16. (a) Explain polling and interrupt method of executing an interrupt. 5
    (b) Mention different types of interrupts available in 8051 along with its vector table. 5

17. Write the schematic algorithm and a program to interface push button switch to 8051. 10

18. Write an ALP to receive data serially at a baud rate of 4800 and send the received data to R_1. 10

19. Write a schematic algorithm and program to interface stepper motor with 8051. 10