Code : 15EC42T

Register Number	4	5	7	E	C	1	6	0	0	9

IV Semester Diploma Examination, Nov./Dec.-2018

MICROCONTROLLERS AND APPLICATIONS

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

Instructions : (1) Answer any **six** questions from Part – **A. (5 × 6 = 30 Marks)**

(2) Answer any **seven** questions from Part – **B. (10 × 7 = 70 Marks)**

PART – A

1. Differentiate between a microcontroller and microprocessor. **5**

2. List the functions of any five SFRs. **5**

3. Write an ALP to transfer a block of data from one portion of internal RAM to another. **5**

4. Explain the different data types in 8051 C. **5**

5. List the steps involved in executing an interrupt. **5**

6. Explain the significance of SI and RI flags. **5**

7. List the steps involved in serial data transmission. **5**

8. Write the schematic for interfacing a 4 digit multiplexed 7 segment display to 8051. **5**

9. Sketch the schematic for interfacing ADC 0804 to 8051. **5**

PART – B

10. Explain the functions of reg A, reg B, PC, SP and DPTR. **10**

11. Explain any five single bit instructions of 8051. **10**

12. Write an ALP to arrange a list of 8 bit numbers in descending order. **10**

13. (a) Write an 8051 C program to convert packed BCD to ASCII and to display it on P_1 and P_2. **5**

    (b) Write a C program to read $P_{1.2}$ and send it to $P_{2.3}$ after inverting it. **5**

14. (a) Compare the interrupt method and polling method of servicing devices. **5**

    (b) Differentiate between RET and RETI. **5**

15. Explain the bit structure of TMOD register. **10**

16. Write the schematic algorithm and a program to interface 4 digit multiplexed seven segment display to 8051 and display 2016. **10**

17. Write the schematic, algorithm and a program to interface a stepper motor to 8051 and to rotate the motor in clockwise direction using normal four step sequence. **10**

18. Describe the method of interfacing 2k data RAM to 8051 microcontroller. **10**

19. Explain the addressing modes of 8051. **10**