

653**October 2017**

Time - Three hours
(Maximum Marks: 75)

[N.B: (1) Q.No. 8 in PART - A and Q.No. 16 in PART - B are compulsory. Answer any FOUR questions from the remaining in each PART - A and PART - B.

(2) Answer division (a) or division (b) of each question in PART-C.

(3) Each question carries 2 marks in PART - A, 3 marks in Part - B and 10 marks in PART - C.]

PART - A

1. What is a program counter?
2. Define instruction cycle and machine cycle.
3. Write the multiplication and division instructions of 8051.
4. List the operating modes of timer.
5. State the functions of M1 and M0 bits in TMOD register.
6. What is meant by interrupt priority in 8051?
7. State the addresses for selecting ports and control word register in 8255.
8. State any two differences between microprocessor and microcontroller.

PART - B

9. Write about PSW register.
10. What is meant by assembler directives? Explain it with two examples.
11. What are the functions of TF0 and TR0 bits in TCON register?
12. Write about TMOD register.
13. State the features of RS232 interface.
14. Write the control word format of 8255.
15. Draw a schematic diagram to interface a relay with 8051 microcontroller and give a brief explanation.
16. What is ALU? What are the functions of it?

PART - C

17. (a) Draw the architecture of 8051 and explain the functions of each block.

(Or)

- (b) Classify the 8051 instructions based on their functions. Explain them with examples.

18. (a) Explain the addressing modes of 8051.

(Or)

- (b) Write an assembly language program to find the biggest number in a given array of ten numbers.

19. (a) Explain in detail about the programming of 8051 timer.

(Or)

- (b) Write about the operating modes of timer/counter with a neat diagram.

20. (a) Write the steps involved in programming 8051 to transfer and receive data serially.

(Or)

- (b) Write about PCON register and SCON register.

21. (a) Draw the block diagram of 8255 and explain the modes of operation.

(Or)

- (b) Explain seven segment LED display interfacing with 8051.
