

November 2022

Time - Three hours
(Maximum Marks: 100)

- [N.B. 1. Answer all questions under Part-A each question carries 3 marks.
2. Answer all the questions either (A) or (B) in Part-B each question carries 14 marks.]

PART - A

1. Compare Microprocessor and Microcontroller.
2. List any three 8051 family members and mention their on chip memory capacity.
3. List down the Classification of Instructions of 8051.
4. What is meant by Time delay routine?
5. Write down the bit addresses of I/O ports.
6. Write about PCON register.
7. What is PWM?
8. Define Interfacing and write an example for interfacing device.
9. Write down the types of microcontrollers.
10. Write down any three applications of IoT.

PART - B

11. (a) (i) List the special function registers of 8051 with their addresses and explain any two of them.
(ii) Discuss the overview of 8051 family.

(Or)

- (b) (i) With the diagrams, explain the operation of I/O ports.
(ii) Explain instruction fetching and executing.

[Turn over.....

12. (a) (i) Explain the different addressing modes of 8051 in detail.
(ii) Explain time delay routine using single register.

(Or)

- (b) (i) Write the assembly language for finding the smallest number in an array.
(ii) Explain about any four assembler directives.

13. (a) (i) Explain in detail about programming of 8051 Timer.
(ii) List the SFR's for timer/counter and give their byte/bit addresses.

(Or)

- (b) (i) Define interrupt. List the interrupts.
(ii) Explain the SFR's for interrupts in detail.

14. (a) (i) Draw the block diagram of 8255 and explain it.
(ii) With the interfacing diagram, explain the operation of relay.

(Or)

- (b) (i) Draw the interfacing diagram of DC motor with microcontroller 8051 and explain its operation.
(ii) Explain BSR mode of 8255 with example.

15. (a) (i) Draw the general block diagram of PIC microcontroller and explain.
(ii) Write down the features of IoT.

(Or)

- (b) (i) Draw the block diagram for home automation using IoT and list the blocks.
(ii) Write down the applications of IoT.
