April 2024

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. Define Instruction cycle.

2. Write down the alternate functions of Port 3.

3. List down the classification of Instructions of 8051 based on its operation.

4. What are the uses of branching instructions?

5. Write a program to toggle D0 bit of port 1 continuously.

6. List the modes of serial communication.

7. How many address lines are used to interface 16 kB external memory?

8. What is BSR mode of 8255? Write the BSR control word format.

9. List any three features of Arduino.

10. List any three applications of an IoT.

[Turn over.....

PART – B

11. (a) Draw and explain the architecture diagram of 8051.

(Or)

(b) Explain the memory organization of 8051.

12. (a) Explain the various addressing modes of 8051 with an example for each case.

(Or)

(b) Write an assembly language program to find the largest number in an array of 8 numbers.

13. (a) Explain the modes of operation of Timer/Counter with neat diagrams.

(Or)

(b) Explain the interrupt servicing of 8051 based on priority.

14. (a) Explain seven segment display interfacing with 8051.

(Or)

(b) Draw the block diagram of 8255 and explain it.

15. (a) (i) Draw the general block diagram of Raspberry Pi and explain each block.(10)
      (ii) List the advantages and disadvantages of Raspberry pi microcontroller.(4)

(Or)

(b) State the need for IoT. Also explain how an IoT system actually works.