PART – A

Answer all questions from Part A.

1. What is an embedded system? Give examples.  
2. Give the limitations of polling technique.  
3. Explain the significance of the stack operation of 8051.  
4. Write a delay routine for producing a delay of 0.5 sec., the operating frequency of the microcontroller is 3 MHz.  
5. Name the five interrupt sources of 8051.  

(5×4=20 Marks)

PART – B

Answer any one full question from each Module.  

(5×20=80 Marks)

Module – I

6. a) Specify the features that differentiate embedded systems from desktop systems. Also list out single purpose processors used in embedded system design.  
   b) Briefly explain the various life cycle models. 

   OR

7. a) Discuss about the different data structures of embedded system with suitable examples.  
   b) Discuss in detail about compilers and profilers of an embedded system.  

P.T.O.
Module – II

8. a) Explain the architecture of 8051 with neat diagram. 10
    b) Explain various Special Function Registers of 8051 (SFRs) with respect to their applications. 10

    OR

9. a) Elaborate the features and functions of addressing modes. 10
    b) Write a program to perform 16 bit addition and subtraction. 10

Module – III

10. a) Explain the programmable timer of 8051 with diagram. 10
    b) Explain the operation of counters of 8051 with diagram. 10

    OR

11. a) Explain in detail about serial communication operation with examples. 10
    b) Write short notes on baud rate doubling. 10

Module – IV

12. a) Explain programmable interrupt controller of 8051 with diagrams. 14
    b) Explain the interfacing scheme of ADC with microcontroller 8051. 6

    OR

13. a) Explain the interfacing of LCD with 8051. 10
    b) Explain digital to analog interface and stepper motor interface with 8051 microcontroller strategy. 10