PART - A

Answer all questions in Part A. Each carries 4 marks.

1. List the important characteristics an embedded system should possess.

2. What is the role of sensors in an embedded system. Give some examples.

3. Distinguish between hard and soft real time system with the help of examples.

4. Discuss how indexed addressing mode is useful in the case of accessing internal and external memory of 8051, micro controller.

5. What an ALP program to convert hexadecimal number into decimal number ?

6. Explain the role of IE register in 8051 microcontroller system.

7. Describe the serial communication feature of 8051 system.

8. Differentiate between sequential tasking and multitasking systems.

9. How can hardware interrupts of 8051 can be made edge triggered ?

10. Discuss address decoding techniques of 8051 system.

P.T.O.
PART – B

Answer any one question from each Module.

Module – I

11. a) Explain software life cycle development model of a real-time embedded system.  
   b) Discuss various challenges and trends in the embedded system design process.  

   OR

12. a) Explain various software tools used for the development of an embedded system product.  
   b) With the help of an example, illustrate main features of an embedded system.

Module – II

13. a) Explain RAM memory architecture of embedded system.  
   b) Write an ALP program to create a square wave with ON time of ‘3’ms (three milli second) and OFF time of ‘10’ ms (Ten milli second) on all ports of port 0. Assume XTAL = 22 MHz.

   OR

14. a) Explain how interrupt programming as done in the case of 8051 microcontroller.  
   b) Write an 8051 ‘C’ program to transfer serially the message “GOODBYE”. Continously at 57,600 rate (Fifty Seven thousand and Six hundred)

Module – III

15. a) With a neat diagram explain how ADC can be enterfaced with 8051 microcontroller.  
   b) Write C program to send 55 H and AAH to all ports of 8255 continously. Assume the base address of 8255 is 4000H.

   OR

16. a) Explain how LCD can be enterfaced with 8051 µc. Explain the need of various pins of LCD.  
   b) Write a program send information to LCD with checking busy flag.