

[Time: Three Hours]

[ Marks:80]

Please check whether you have got the right question paper.

- N.B:
1. Question.No.1 is compulsory.
  2. Answer any three questions out of remaining five.
  3. Assume suitable data wherever necessary.

- Q.1 Attempt any four: **20**
- a. Explain function of T0 and T1 pins of 8051.
  - b. Explain PSW of 8051 in detail.
  - c. Explain Memory organization in 8051 microcontroller.
  - d. Explain the concept of pipeline of ARM 7.
  - e. Compare AJMP, SJMP and LJMP instruction of 8051.
- Q.2 a. Explain interrupts in 8051 microcontroller. **10**  
b. Explain PORT 3 structure of 8051. **10**
- Q.3 a. Explain interfacing of ADC 0808 with 8051. **10**  
b. List and explain the different core extension used with ARM processor. **10**
- Q.4 a. Design 8051 based system with following specifications **10**  
  - i) 8051 working at 10MHz.
  - ii) 4 KB External Program memory using 2 KB chips
  - iii) 8 KB External Data memory using 4 KB chips
b. Explain addressing modes of ARM with examples. **10**
- Q.5 a. Explain stack operation in 8051 with examples. **10**  
b. Explain IR based wireless communication system. **10**
- Q.6 **20**
- a. Explain current program status registers of ARM7
  - b. Explain serial communication in 8051
  - c. Explain “Digital camera as an embedded system”
  - d. What are the challenges in optimizing embedded system design matrices?