

**Q.P. Code : 587902****( 3 Hours )****[Total Marks : 80**

N.B.

1. Question No. 1 is compulsory
2. Attempt any 3 questions from Q.2 to Q6.
3. Figures to the right in the bracket indicate full marks
4. Assume suitable data if necessary

- Q1 A) Explain program status register of 8051 Microcontroller [5 M]
- Q1 B) Explain features of ARM 7 [5 M]
- Q1 C) Explain concept of Cortex-A, Cortex-R and Cortex-M [5 M]
- Q1 D) Explain SCON register of 8051 microcontroller [5 M]
- Q2 A) Draw and explain internal memory organization of 8051 microcontroller [10M]
- Q2 B) Explain addressing modes of ARM7 processor with examples. [10M]
- Q3 A) Draw and explain architecture of ARM7 processor. [10M]
- Q3 B) Explain timer modes of operation of 8051 microcontroller [10M]
- Q4 A) Explain digital camera as an example of embedded system. [10M]
- Q4 B) Design a 8051 based system with following specifications [10M]
- i) 32KB EPROM using 8KB devices.
  - ii) 16KB RAM using 8KB devices.
- Q5 A) Explain ARM instructions
- a) EOR R1, R0, #3
  - b) MLA R4, R3, R7, R8
  - c) CMP R0, R1
  - d) ADD R0, R2, R3, LSL #1
  - e) MVN R0, #4
- Q5 B) Draw and explain internal structure of port0 and port3 of 8051 microcontroller [10M]
- Q6 Write short notes on [Any Four]
- a) Compare features of 89C51, 89C52, 89C2051 and 89C2052 [5 M]
  - b) Operating modes of ARM7 processor. [5 M]
  - c) Design metrics of embedded system. [5 M]
  - d) Addressing modes of 8051 microcontroller. [5 M]
  - e) Interrupt structure of 8051 microcontroller. [5 M]