Time: 3 Hours   **Total Marks: 80**

N.B.:- (1) Question No. **1** is **Compulsory**.
     (2) Solve any **three** questions from the remaining **five** questions.
     (3) **Figures** to the **right** indicate **full** marks.
     (4) Assume **suitable** data where **necessary.**

1. (a) Explain application of Embedded System.   **5**
    (b) Explain SOC in detail.   **5**
    (c) Compare AJMP, SJMP, LJMP instructions of 8051   **5**
    (d) Describe the feature of ARM 7 processor.   **5**

2. (a) Explain in details ARM7 pipelining.   **10**
    (b) Explain the Timer/Counter modes of 8051 microcontroller.   **10**

3. (a) Explain addressing modes of ARM 7 processor.   **10**
    (b) Explain various serial modes of 8051 microcontroller.   **10**

4. (a) What is Semaphore? Explain the use of semaphore with respect to
         embedded systems?   **10**
    (b) Write an assembly language program for 8051 microcontroller to arrange
         block of ten numbers in ascending order.   **10**

5. (a) Explain priority inversion problem in Embedded Systems. How does it
         resolved?   **10**
    (b) Explain the architecture of 8051 microcontroller.   **10**

6.   Write notes on   **20**
    (a) Digital Camera System.
    (b) Automated meter reading system.