(3 Hours)   [Total Marks : 80

N. B.: (1)   Question No. **1** is **compulsory**.
(2)   Solve any **three** from remaining **five** questions.
(3)   **Figures** to the **right** indicate **full** marks.
(4)   Assume suitable data if necessary and mention the same in the answersheet.

Q1

a   Differentiate between microprocessor and microcontroller.   5
b   Explain 8051 assembler directives.   5
c   Short Note: CPSR.   5
d   List and explain design metrics of an Embedded System.   5

Q2

a   Explain PORT 1 structure of 8051.   10
b   Design a microcontroller system using 8051 microcontroller, 8kB   10
    EPROM & 8kB RAM.

Q3

a   WAP for 8051 microcontroller to generate a square waveform of   10
    frequency 1kHz and 50% duty cycle at pin P1.1. Assume 8051 is
    operating at frequency 12MHz.
b   Interface 8051 with DAC 0808, WAP to generate a triangular waveform.   10

Q4

a   Draw and explain data flow model of ARM7.   10
b   Explain register organization of ARM7.   10

Q5

a   Explain ARM following instructions: 10
    CMP r0, r1, LSR#7   ADD r2,r1,r0   LDR r10,[r1]
    AND r1,r1,#3   OR r2,r2,#3
b   Explain digital camera as an example of embedded system.   10

Q6 Short Notes:
a   Interrupt structure of 8051.   10
b   Timer modes 8051.   10

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