Duration Three Hours **Total marks 80**

N.B. [i] Question No 1 is compulsory and attempts any three out of remaining five questions.
[ii] Assume suitable data wherever required.
[iii] Figures to the right indicate full marks.

1. **Solve any four**

(a) Differentiate between RISC & CISC Architecture. 5

(b) What is difference between Primary memory and Secondary memory 5

(c) What will be the status of CY, AC, OV and P flag after F2H + 4BH operation is carried out in the ALU of the 8051 microcontroller? 5

(d) Explain the need of Watch Dog Timer and Brown Out Detection feature used in the microcontrollers 5

(e) Explain following ARM7 instructions 5
- ADD R0,R2,R3,LSL#1
- CMP R0,R1,LSR#7

2. (a) With the help of diagram, list the sequence of operation carried out by the microprocessor after RESET to execute a program stored in a memory. Assume suitable RESET vector address. 10

(b) Explain concept of Virtual Memory with Memory Management Unit. 10

3. (a) Explain Interrupt structure of 8051 microcontroller. 10

(b) Describe the features of ARM processor. Also explain Which features are accepted and which are rejected from basic RISC machine. 10

4 (a) Write assembly language program for 8051 to transfer message "MAY 2023" serially at baud rate of 9600 in mode1. Assume that 8051 operate at frequency 11.0592 MHz 10

(b) Explain difference between Timer & Counter of 8051. Explain all timer modes. 10

5. (a) What is significance of CPSR register of ARM? Draw and explain each bit position 10

(b) Write assembly language program for 8051 for blinking all 8 LEDs connected to port 1. Select proper delay so that the blinking is clearly seen. Assume 8051 is operating on 12Mhz. Use Delay Subroutine for generating suitable delay. 10

6 (a) What are the factors that are required to be considered for selecting a microcontroller for an application? 10

(b) What do you mean by Assembler directives, Why Assembler directives are called as Pseudo instructions? Explain few of them with examples. 10

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