

[Time: 3 Hours]

[Marks: 80]

Please check whether you have got the right question paper.

- N.B:
1. Question no. 1 is compulsory.
 2. Attempt any Three questions from remaining
 3. Assume suitable data if required and mention it in answer sheet

- Q.1
- a) Explain SCON Register of 8051 Microcontroller **4**
 - b) Explain TxD, EA, ALE and PSEN pins of 8051 Microcontroller **4**
 - c) List and Explain design metrics of Embedded Systems **4**
 - d) Write short notes on CPSR of ARM7 **4**
 - e) Explain concept of Cortex-A, the Cortex-R and the Cortex-M **4**
- Q.2
- a) Explain Internal RAM Organization of 8051 Microcontroller **10**
 - b) Explain following instructions of ARM7 **10**
 ADD r0, r1, r1, LSL # 1
 ORR r0, r1, r2
 LDR r0, [r1, #2]
 AND r1, r1, #3
 CMP r0,r1,LSR #3
- Q.3
- a) Interface DAC0808 with 8051 microcontroller. Write Assembly language Program to generate triangular waveform **10**
 - b) Write a program for 8051 microcontroller to generate rectangular waveform of 1kHz and 70% duty cycle at pin P1.1. Assume 8051 is operating at frequency 12MHz. **10**
- Q.4
- a) Draw and Explain dataflow model of ARM7 **10**
 - b) Explain Addressing modes of ARM7 Processor with example in each. **10**
- Q.5
- a) Explain the Memory Interfacing of 8051 with 16K*8 Data RAM and 16K* 8Data ROM **10**
 - b) Discuss Digital camera as an Embedded System **10**
- Q.6 Write short notes on (Any Two)
- 1) 8051 Addressing modes with example **10**
 - 2) Interrupts in 8051 **10**
 - 3) 8051 Timer operating modes **10**