

Note the following instructions.

1. Question no.1 is compulsory.
2. Solve any three questions out of remaining five questions.
3. Assume suitable data if necessary.
4. Draw neat diagrams wherever necessary.

1.
 - a) What are the specialties of Embedded Systems? (4)
 - b) What are the major components of 8051 microcontroller? (3)
 - c) Explain in brief Assembler Directives with respect to 8051 assembler. (3)
 - d) Explain in brief the principal features of the ARM architecture. (3)
 - e) Explain in brief Real Time Operating Systems. (4)
 - f) Explain in brief features of DSP and SOC. (3)
2. (a) Explain in details pipelining in ARM7 processor? (10)
 - (b) What are the Addressing Modes of 8051 microcontroller? (10)
Explain with example in each addressing mode.
3. (a) Explain functions of Program Status Word Register, Timer Control Register and Interrupt Priority Register in 8051 microcontroller. (10)
 - (b) Explain how Exceptions and Interrupts are handled in ARM 7. (10)
4. (a) Assuming crystal frequency = 11.0592 MHz, write an Assembly Language Program for 8051 to generate square wave of 50 Hz at port pin P2.3. Draw circuit diagram to implement the same. (10)
 - (b) List Task scheduling algorithms. Explain operation of each of the algorithms. (10)
5. (a) List the Kernel objects and explain functions of each of the objects. (10)
 - (b) Explain with block diagram design of Battery Operated Smart Card Reader. (10)
6. Write short note on the following
 - (a) Digital Clock as an embedded system. (7)
 - (b) Serial Port Communication in 8051. (6)
 - (c) Addressing Modes of ARM 7 processor. (7)