

Time: 3 Hours

Total Marks: 80

- N.B.: 1. Question No. 1 compulsory.  
2. Attempt any Three out of remaining five questions.  
3. Figures to the right indicate full marks.  
4. Draw neat diagram wherever necessary.

- Q1. Solve any four out of five
- A) Differentiate between Microprocessor and Microcontrollers 05
  - B) Give salient features of ARM7 processor 05
  - C) Explain in brief various characteristics of RTOS 05
  - D) What are the design metrics of an embedded systems 05
  - E) List an important features of Raspberry\_pi board. 05
- Q2.
- A) Explain SJMP,AJMP and LJMP instructions of 8051 in detail 10
  - B) Explain CPSR of ARM7 in detail 10
- Q3.
- A) Write a program to transfer “INDIA” serially at 9600 baud rate with using 8051.Assume frequency 11.0592Mhz. 10
  - B) Explain in brief the architecture of RTOS 10
- Q4.
- A) List and explain how exceptions and interrupts handled in ARM7. 10
  - B) Write a program to generate a triangular waveform using DAC and 8051. 10
- Draw the interfacing circuit diagram
- Q5.
- A) Explain Internal memory organization of 8051 10
  - B) Draw interfacing of keyboard matrix with 8051 in detail with diagram. 10
- Write a program to generate Hexadecimal values.
- Q6. Write notes on: (ANY TWO) 20
- a) Hard real time and Soft real time RTOS
  - b) Modes of timers in 8051
  - c) Interrupts of 8051
  - d) Extended libraries of Arduino

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