

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 10
using 8051. Assume frequency 11.0592Mhz.
- 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
