

- Note: 1) Question No.1 is compulsory.
 2) Attempt any three questions from remaining five questions.
 3) Assume suitable data if necessary.
 4) Figures to the right indicate full marks.

- Q.1) Answer the following questions.
- a) Compare the features of cortex R, cortex A and cortex M series. 5M
 - b) Zig –Bee in wireless sensor networks 5M
 - c) EDLC 5M
 - d) uCOS-ii functions 5M
- Q.2) a) Explain briefly register structure of Cortex M3 architecture along with the function of various special registers. 10M
- b) Define FSM. Explain and draw FSM for G+ 2 elevator. 10M
- Q.3) a) Design automatic chocolate vending machine. Give the proper details for this, 10M
- i. FSM which describes the functioning of the system
 - ii. Hardware and software block diagram
 - iii. List of components with justification
 - iv. Design challenges and suggest solutions
- b) Distinguish between Cortex M3 and M4 architecture and explain briefly the interrupt structure of M3 architecture. 10M
- Q.4) a) What is an inter process communication? Explain the various IPCs used in RTOs. 10M
- b) Three periodic processes scheduled using EDF, will processes meet the deadlines? 10M

Process	Execution Time = e_i	Period = p_i
P1	1	10
P2	2	4
P3	4	12

- Q.5) a) Give the comparison details between black box and white box testing. 10M
- b) What are the different data types? What is shared data problem? Explain the solutions to avoid shared data problem. 10M
- Q.6) a) Explain various design metrics. Explain the various optimization challenges for embedded system. 10M
- b) Write short note on 10M
- i. CPLD
 - ii. FPGA
