Level: Bachelor | Semester: Spring | Year : 2016
Programme: BE | Full Marks: 100
Course: Embedded System | Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What is embedded system? Explain the components of embedded hardware. 7
   b) Explain with an example how to optimize custom single purpose processors. 8
2. a) Draw the combinational logic design for three inputs a, b & c and two outputs y & z. The output 'y' is such that y is 1 if a is 1 or b & c is 1 and z is 1 if b or c is 1 but not both. 7
   b) How does a programmer view a microprocessor based embedded system? What are his/her concern? 8
3. a) Compose $2^{(k+1)}$ X 2n memory using 2^k X n memory modules. 7
   b) What is interrupt? Explain the steps used in data transfer using vector interrupt along with its flowchart. 8
4. a) Explain any two arbitration techniques that implemented to communicate with peripheral devices from the microprocessor. 7
   b) List out the difference between process and thread? Explain various state of process. 8
5. a) Define Real Time Operating System. Differentiate between clocking communication and task synchronization. 7
   b) Explain briefly the architecture of 8051 microcontroller with the aid of block diagram. 8
6. a) Give an introduction to VHDL and explain the basic structure of a VHDL file with examples. 7
   b) Write a VHDL program for which output will be 1 when the sequence 101 is detected. 8
7. Write short notes on: **(Any two)** 2×5
   a) Task, task states and task scheduling
   b) Cross compiler and cross assembler
   c) VHDL program to simulate binary adder