Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/M.Tech(ECE)/SEM-2/EC-1003/2010
2010
EMBEDDED & REAL TIME SYSTEMS

*Time Allotted* : 3 Hours   *Full Marks* : 70

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words
as far as practicable.

Answer any *five* questions.   5 × 14 = 70

1. Draw the model of basis real time system and explain its block. What are different types of real time systems ? Give examples. Compare clock driven and event driven schedulers.   14

2. Explain the different types of scheduling techniques in a uniprocessor with proper example. Compare different real time tasks.   14

3. Check the following periodic tasks for schedulability under RMA on a uniprocessor T1 : (e1 = 20 ms, p1 = 100 ms), T2 : (e2 = 30 ms, p2 = 150 ms), T3 : (e3 = 100 ms, p3 = 250 ms). What do you understand by Software Hardware Co-design ? Explain with proper diagram.   14

30297 (M.Tech)   [Turn over
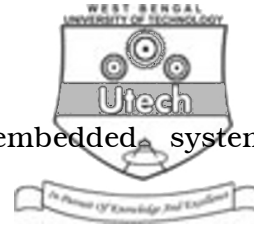
4. a) How does a computer differ from an embedded system ? Explain with examples.

   b) An automobile cruise control system is to be designed in a project. What type of embedded system is it ? What will be the skills needed in the team of hardware and software engineers ?

   c) What do you mean by embedded processor ?   5 + 5 + 4

5. a) Describe the basic structure of an FPGA.

   b) Design a full adder circuit using MUX (only). Show details.   7 + 7

6. a) What is synthesis ? Draw the flow-chart for synthesis process.

   b) What is RTL description ? Explain the differences between component initiation and register inference of RTL description by writing some example codes.

   c) What are the different types of constraints associated with the synthesis process ?   4 + 7 + 3