Quiz-1
DIGITAL DESIGN VERIFICATION (CS: 676)

Answer all questions **Time: 1hr**
Full Marks 30
Dt: 26/2/2007

1. Draw a flow chart for the verification flow, clearly marking the various types of verification strategies. (5 marks)

2. What is the difference between **linting** and **simulation**. Explain in short what is meant by **event** driven and **cycle** based simulation. In what kinds of design shall you prefer each of them? (5 marks)

3. Define using e-construct the following two keyed lists: **cache** and **memory**. Each of the lists has **data-objects** as members. The data-objects are characterized by the fields **data** and **addr**. Describe **write** and **read** methods to write and read to and from the keyed lists, using the addr field as the key. Generate randomly 1024 data objects and store them in the memory and 128 values in the cache.

Write a method **read-through(…)** which reads values from the cache, searching based on the addr field. If the data is not present (i.e. a miss occurs), then search in the memory for the corresponding data value. Print the read data, and also its location i.e. cache or memory. Draw an e-hierarchy.

(5 + 10=15 marks)

4. Consider the following property of an asynchronous handshake between Block1 and Block2 (refer Fig.1).

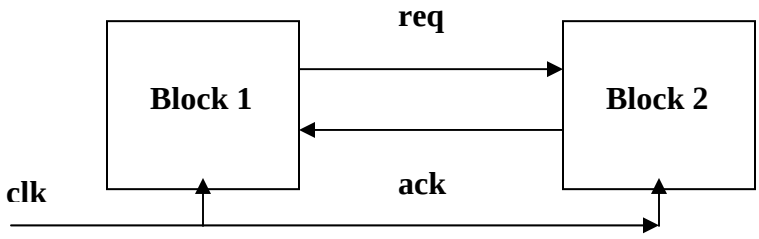

Fig. 1

Property: The **ack** signal goes high on the assertion of **req** followed by **two** positive edges of the clock signals.
Describe the above property using LTL. Subsequently write e-code snippets to describe the property, using temporal expressions. (5 marks)