1994 Paper 4 Question 10

Structured Hardware Design

For each of the following entities which are held in the design database of a digital CAD/CAE system, describe their function and the attribute values or data structures that the system must maintain for each instance. Include both the simulation phase and the mask or PCB generation phase of the design process.

(a) a signal net, including provision for back annotation of layout delays

[10 marks]

(b) a stable master clock oscillator   [3 marks]

(c) a tri-state buffer, with output load dependent delay   [4 marks]

(d) an artificial stimulus source, used to model an existing external interface component   [3 marks]