

1997 Paper 3 Question 7

Structured Hardware Design

A *smart card* is the size and shape of a credit card, but contains a microprocessor, a RAM, a ROM and some amount of non-volatile storage. The only connections to the card are five gold-plated contacts for power, ground, clock, data and reset. Write a few sentences about each of the following:

- (a) Design partition: i.e. how should the circuitry of the card be structured? [5 marks]
- (b) Testing: i.e. how will the component(s) of the card and the completed card be tested before shipping? [5 marks]
- (c) Product customisation: i.e. how will the card be different in different application markets (banking, authentication, casino, cellular phone etc.)? [5 marks]
- (d) Uniqueness: i.e. how would the card be customised or differentiated on a per-card basis for individual users? [5 marks]