

## 2004 Paper 8 Question 3

### Digital Communication II

- (a) The architecture of IP routers has had to evolve to meet the demands of increasing network link bandwidth. Outline the design of a modern router as might be found in the Internet core. [5 marks]
- (b) The longest prefix match route lookup function can be accomplished in a number of ways. Describe the operation and relative merits of approaches that involve: [8 marks]
- (i) a binary trie;
  - (ii) a  $2^{24}$  entry lookup table;
  - (iii) multiple hash tables.
- (c) Explain the operation of a virtual output buffered switch fabric, and hence explain its advantages over input buffered and output buffered designs. [7 marks]