SOLUTION NOTES

Foundations of Computer Science 2002 Paper 1 Question 1 (10-mark question) (LCP)

Part (a) refers to Lecture 7, Datatypes and Trees, in which exceptions are also covered. The solution should refer to how exceptions are raised and handled, and should mention that the innermost exception handler will be tried first. That means that the most recent decision will be undone first, which in turn means that the 7 just below the 5 will be found.

Part (b) refers to an alternative to exception-handling, namely to return all solutions. It is similar to the 'making change' example presented in Lecture 5.

```
fun cons x xs = x::xs;

fun consAll x xss = map (cons x) xss;

fun paths Lf = []
  | paths (Br(v,t1,t2)) = (if v=7 then [[]] else []) @
                          (consAll 1 (paths t1)) @
                          (consAll 2 (paths t2));
```