Additional Topics

Explain the ingredients of the judgement form

\[ E \vdash_v \text{exp} \Rightarrow R \]

which represents the evaluation of an expression in Standard ML. Explain also how, in a fuller form, it caters for side-effects in expression evaluation, and illustrate this using one of the evaluation rules. \[ 7 \text{ marks} \]

State two theorems about evaluation in Standard ML: one which asserts that it is deterministic, and another which asserts that pattern-matching has no side-effects. \[ 6 \text{ marks} \]

Explain how the raising and handling of exceptions is expressed in the evaluation rules. \[ 7 \text{ marks} \]