

1998 Paper 4 Question 4

Compiler Construction

Sketch parsers based on

(a) recursive descent, and [8 marks]

(b) a table-driven method of your choice (e.g. SLR(1)) [12 marks]

suitable for parsing the following grammar:

```
S -> E eof
E -> E + T | E - T | T
T -> P ^ T | P
P -> ( E ) | n
```

with **S** as the start symbol. The table-driven parser should include the associated algorithm which interprets the table. The parsers do not need to produce a parse tree, merely to report whether the input string is generated by the above grammar. You may assume there is a routine `lex()` which when called places the next symbol (`+`, `-`, `^`, `(`, `)`, `n`, `eof`) in variable `token`.