

## 1996 Paper 10 Question 2

### Modula-3

Outline the syntax of a procedure *signature*. [4 marks]

Describe the different *modes* that a formal parameter may have. [4 marks]

Explain the operation of the following program and include the output in your account.

```
MODULE Chop EXPORTS Main;

IMPORT IO, Fmt;

CONST
  y = '0';      (* Character zero *)

VAR
  x := 'Z'; z := 'A';

PROCEDURE p(VAR x : CHAR) =
  BEGIN
    FOR z := y TO x DO
      IO.Put(Fmt.Char(z))
    END;
    IO.Put("\n");
    x := VAL( (ORD(x)+ORD(y)) DIV 2, CHAR)
  END p;

PROCEDURE q(z : CHAR) =
  CONST
    x = '?';
  BEGIN
    REPEAT
      p(z);
      IO.Put(Fmt.Char(x) & Fmt.Char(y) & Fmt.Char(z) & "\n")
    UNTIL y = z
  END q;

BEGIN
  q('9');
  IO.Put(Fmt.Char(x) & Fmt.Char(y) & Fmt.Char(z) & "\n")
END Chop. [12 marks]
```