

2.2 PROGRAMMING TECHNIQUES · 2.2.1(A)

Sequence, selection & iteration

The three building blocks of every program. Spec 2.2.1(a).

01 Sequence

Def Statements run **in order**, top to bottom.

Watch Later lines depend on earlier ones.

02 Selection (branching)

Forms `if...elseif...else...endif` · `switch/case`.

How Conditions tested **in order**; first True runs.

Use Choose **which** code runs.

03 Iteration

Count `for i = 1 to n ... next i` — known count.

WHILE Test **first** → may run 0 times.

DO...UNTIL Test **last** → runs ≥ 1 time.

Pick Known → FOR · test-first → WHILE · once-min → DO.

04 Trace tables & syntax

Trace One column per variable; one row per step/pass.

= **Assignment** (give a value).

== **Comparison** (test equality).

MOD Remainder; $x \text{ MOD } 2 == 0$ = even.

FINAL PASS BEFORE THE EXAM

Rapid exam tips

Six slips on constructs & tracing.

01

WHILE may run 0 times; **DO...UNTIL** runs at least once.

02

for $i = 1$ to 5 runs **5** times — bounds are inclusive.

03

= assigns; == compares. Don't swap them.

04

"Trace the algorithm" → fill the **whole table**, not just the answer.

05

Use **FOR** only when the count is known in advance.

06

In **if...elseif...**, only the **first True** branch runs.