2.2 PROGRAMMING TECHNIQUES · 2.2.2(A)–(C)

Computational methods

Solvable problems, recognition & decomposition. Spec 2.2.2(a)–(c).

01 Solvable by computer?

Steps	Breaks into well-defined steps (algorithm).
Inputs	Can be represented as **data**.
Rules	Clear calculations, **no human judgement**.
Output	Useful + in reasonable time.
Not	Subjective taste/emotion problems.

02 Problem recognition

What	Define the problem **precisely**.
Goal	What a solution must achieve.
Data	Relevant inputs you can collect.
Limits	Constraints to respect.

03 Decomposition

What	Break the problem into **smaller sub-problems**.
Show with	A **structure diagram** (hierarchy chart).
Why	Simpler to design/test · reusable subroutines · team-friendly · easier debugging.
Flow	**Recognise → check solvable → decompose.**

FINAL PASS BEFORE THE EXAM

Rapid exam tips

Six slips on computational-methods questions.

01

"Solvable" = **definable data, clear rules, useful output, reasonable time**.

02

Subjective (taste/emotion) problems are **not** computable alone.

03

Recognition = **define** (goal/data/limits); decomposition = **break up**.

04

"State data items" → pick data that actually **affects the goal**.

05

Decomposition helps: simpler · reusable · team · easier to debug.

06

Show decomposition with a **structure diagram**.