Coding & Algorithms - Answers

Answer Key

Section A: Algorithm Design

1. Accept a clear, logically ordered algorithm with at least 6 steps, e.g. boil kettle, get mug, add teabag, pour water, wait, add milk
2. Because a computer (or person) will follow the instructions exactly as written, so any ambiguity could lead to unintended results
3. Check each step carefully against the expected result to find where the error occurs, then correct that specific step
4. An algorithm is the plan/idea for solving a problem; code is the actual written instructions that implement that plan in a programming language
5. Because one algorithm might use fewer steps or resources than another, even though both reach the correct answer

Section B: Loops & Logic

1. Accept a clear algorithm using a loop concept, e.g. "repeat: water one plant, move to next plant, until all 10 are done"
2. Because repeating instructions manually thousands of times would be impractical, while a loop can do this automatically
3. Accept a reasonable suggestion, e.g. the loop's repeat count might have been set incorrectly, or it stopped one cycle early
4. A condition lets a loop keep checking whether to continue or stop, based on a specific rule being met
5. Because algorithms teach logical, step-by-step thinking that's useful for solving all kinds of everyday problems, not just computing ones