



4.4.1 Abstraction & Automation

1) What is representational abstraction?

[1 mark]

- Removing unnecessary details;
-

2) What is abstraction by generalisation?

[1 mark]

- Grouping by common characteristics // a hierarchal / 'kind-of' relationship;
-

3) Define the term algorithm.

[2 marks]

- A sequence of steps (to complete a task);
 - that always terminates / runs in finite time;
-

4) Explain what is meant by procedural decomposition?

[3 marks]

- Breaking a problem into smaller sub-problems;
 - Each of which solves an identifiable task;
 - Each of which might be further subdivided;
-





- 5) Table 1 lists some terms that are important in the theory of computation. These terms are described in Table 2.

Table 1

Label	Term
A	Information hiding
B	Procedural abstraction
C	Problem abstraction
D	Data abstraction
E	Composition
F	Automation

Complete Table 2 by filling in the appropriate labels (A) to (F) from Table 1 which most closely match the descriptions.

Table 2

Models are put into action to solve problems	F
Combining procedures into compound procedures	E
Details are removed until the problem is represented in a way that is possible to solve because the problem reduces to one that has already been solved	C

[3 marks]





6) **Figure 1** shows a declaration for a class MoveQueue.

Figure 1

```
class MoveQueue:
    private Queue
    public MoveQueue:
        Queue = [ ]

    public Add(NewMove):
        Queue.append(NewMove)

    public getMoveInPosition(Pos):
        return Queue[Pos]
```

Explain how this class uses information hiding.

[1 mark]

- **The implementation of the Queue data structure is not visible/known outside the class;**
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