



Examiners' Report
Principal Examiner Feedback
Summer 2025

Pearson Edexcel International Advanced
Level in Information Technology
(WIT13) Paper 01

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Introduction

This is the fourth full live series for this unit of the IAL IT. The first was in 2019, with years 2020, 2021, and 2022 being disrupted due to Covid19. The 2023 series was the first after Covid19. This series is 2024.

Interpreting words used in the questions

The command taxonomy, available in the specification appendix 6, details the requirements for responses to both the command word **explain** and the command word **describe**. These command words are most often seen in questions worth two marks. One mark is for a statement. The second mark is for a development of that statement (describe) or a justification of that statement (explain). The statement and the expansion must be linked and make sense together.

Responses were seen often for these questions that could only be awarded a single mark, as the development or justification was missing. The mark schemes for Q02c and 3ai demonstrate patterns for responses to an explain question that achieve both marks.

In some questions, the command word **describe** is used where the response is a description of a process. These questions may be worth more than two marks. Each mark is a step in the process.

The words used in the questions should help students identify what is required in the response. There is a difference between characteristics (what something is), functionality (what it does), affordability (what it allows you to do), and its benefits or drawbacks (why you would/would not use it). Q02a asks for explanation of a feature, rather than a component and its function.

Subject-specific terminology

Across all the questions, there was a tendency to omit the use of subject-specific terms or to confuse some words with others. Responses often were general and high-level where the use of a subject-specific term would have more clearly demonstrated knowledge and understanding.

Subject-specific notation

Across all the questions, there was a tendency to confuse the type of notation required for a particular type of task.

Symbols	Observation
Flowchart symbols	Available in the specification appendix 7. All students should be able to interpret and produce flowcharts using these symbols. They should also know when flowchart symbols are appropriate to use.
Dataflow symbols	Available in the specification appendix 7. All students should be able to interpret and produce dataflow diagrams using these symbols. They should also know when dataflow symbols are appropriate to use.
Entity relationship symbols	Available in the specification appendix 7. All students should be able to interpret and produce entity relationship diagrams using

	these symbols. They should also know when entity relationship symbols are appropriate to use.
Information flow diagrams	Available in the specification appendix 7. These are more flexible than the other types of notation and can be used in many different places, particularly where one of the more specific types of symbols is not appropriate.

Essays

Essays are marked using levels-based mark schemes. The contents and information provided in the essays should be technically accurate. The length of the essay is not necessarily related to the awarded mark. For all essays, it is possible to achieve full marks using no more than the space provided in the question paper. Long, rambling essays that include vague or inaccurate information are awarded no more marks than shorter, accurate, and more concise essays.

Q01a

This question was not very well answered. Examiners saw responses that just gave terminology associated with a database, e.g. redundancy, un-normalised, and replication. Lack of validation was the response awarded most frequently.

- 1 Corrupted data: could be corrupted during processing, transfer, etc.
- 2 Wrong validation: when user input is not validated properly, it could cause weak data integ.

This response achieved two of the two marks available.

- 1 Data redundancy
- 2 weak security

This response achieved one mark of the two marks available.

- 1 Wrong format
- 2 Multiple ~~Pis~~ ~~Pice~~ Pieces of data ~~de~~ Per field

This response achieved no marks of the two marks available.

Q01bi

This question was well answered. The majority of responses were able to recall two items that a data dictionary holds.

1 Data types

2 Primary or foreign key

This response achieved two marks of the two marks available.

1 ~~Table name~~ ~~Creator's name~~ Data redundancy check

2 Validation types

This response achieved one mark of the two marks available.

Q01bii

This question was not very well answered. Examiners did see responses that were not appropriate for a Level 3 qualification, e.g. stores data or organises data.

- 1 able to query and search required data
- 2 able to secure data by restricting access on the data

This response achieved two marks of the two marks available.

- 1 It can store data and maintain it. / Backup data
- 2 DBMS also keeps the data up to date causing no delays.

This response achieved one mark of the two marks available.

- 1 ~~The database is used to store data which can be stored on physical data~~
 - 2 Store data off site
- Can be accessed by multiple people

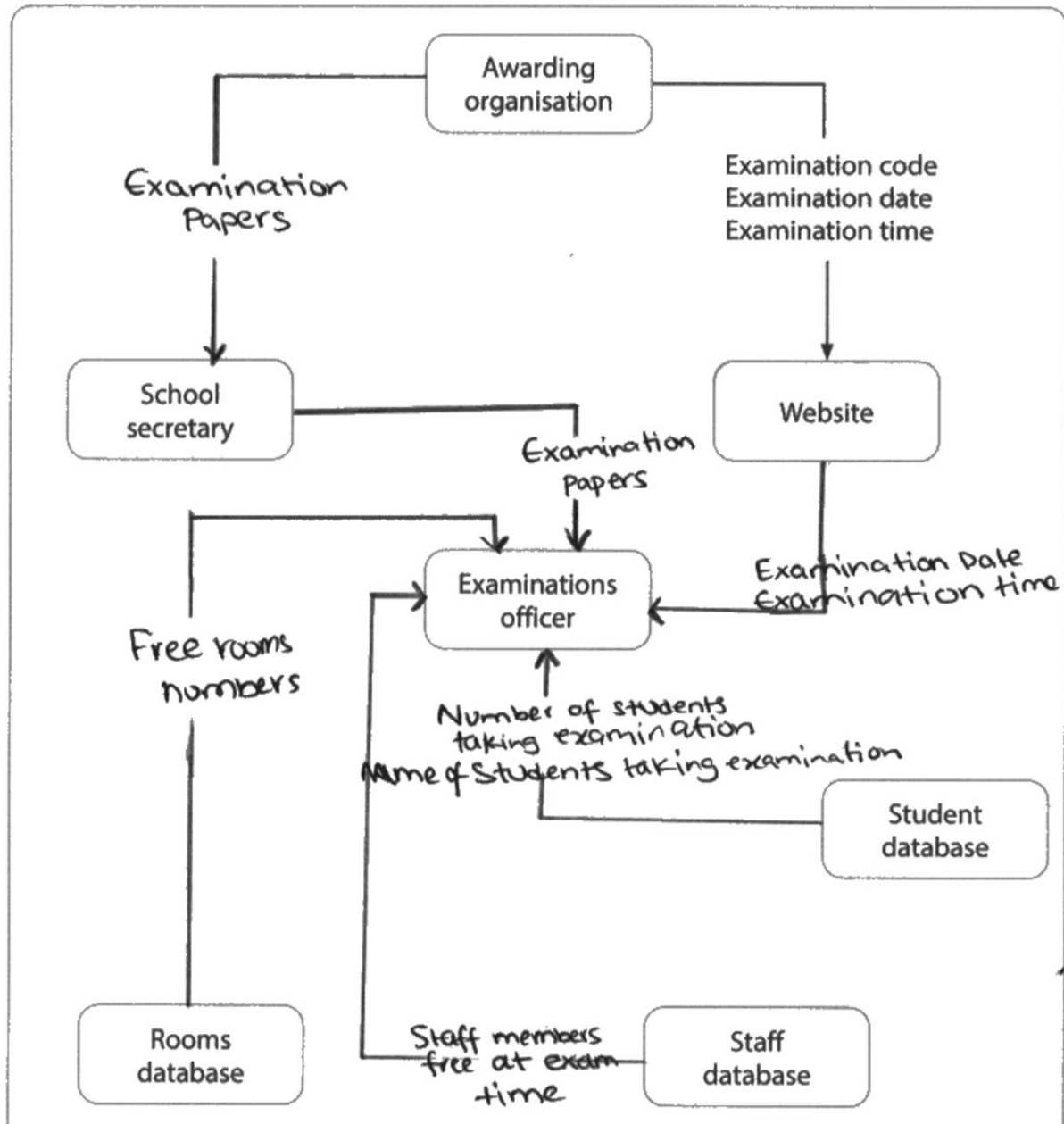
This response achieved no marks of the two marks available.

Q01c

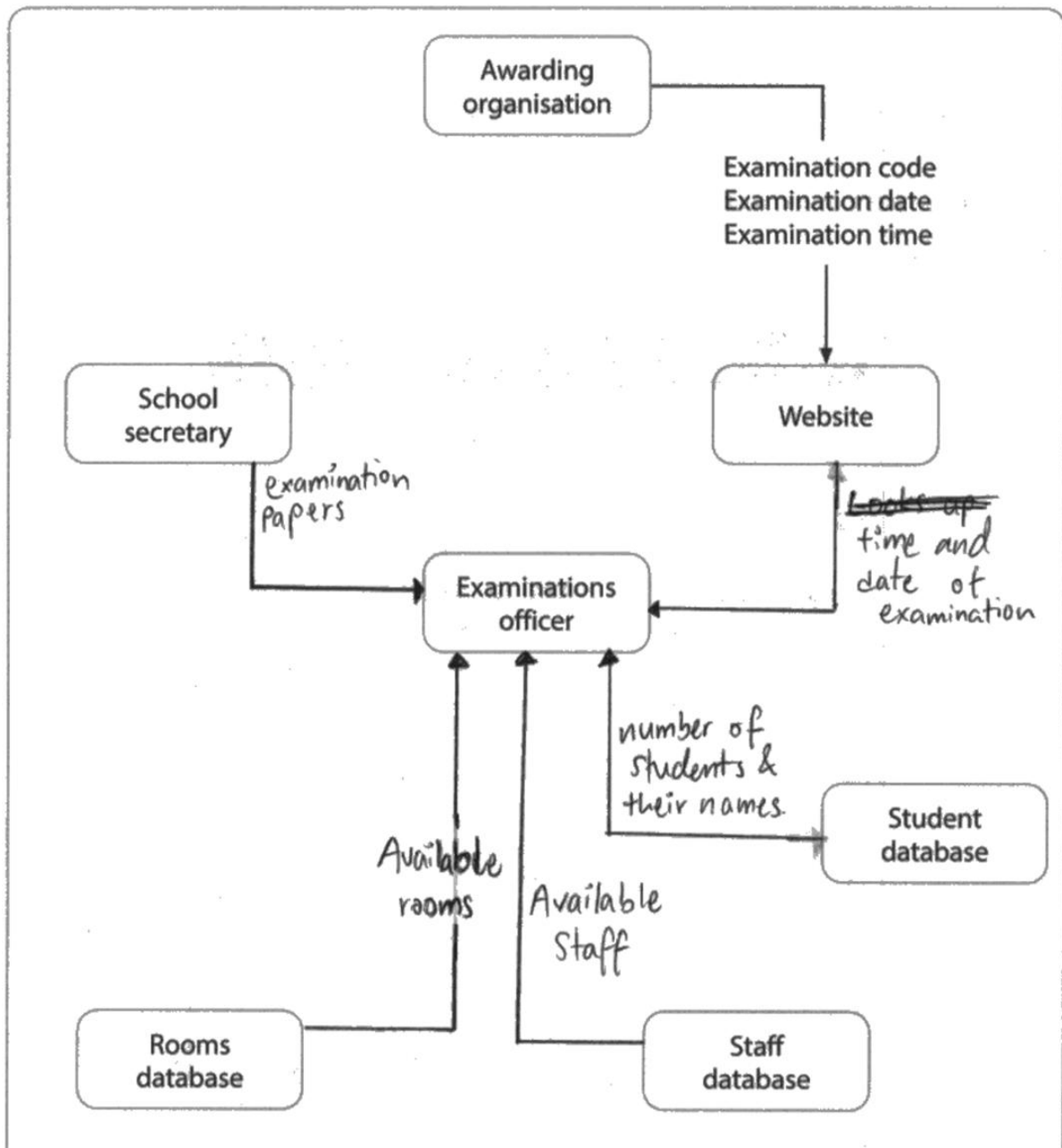
This question was well answered. Examiners say many responses achieving full marks. The question itself states the required number of ticks to add to the table.

Q01d

This question was well answered, with many responses achieving four or more marks.



This response achieved five of the six marks available.

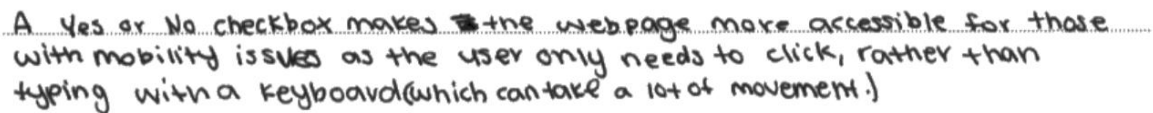


This response achieved three of the six marks available.

Q02a

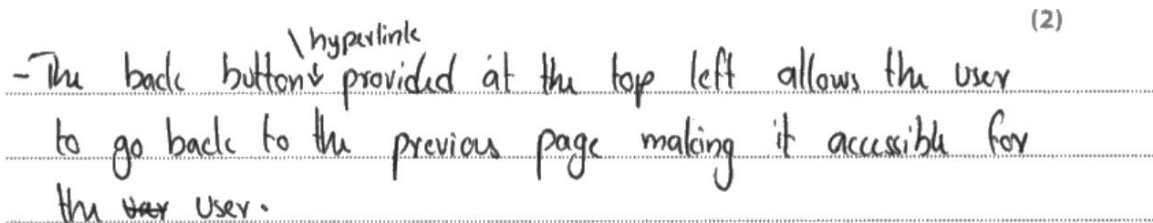
Surprisingly, this question was not very well answered. Responses, almost without exception, seemed to focus on accessibility only from the perspective of groups of users with specific needs. Features of the page that made it accessible for all users, such as the simple layout or limited choice options, were not often addressed.

Where a feature was identified, it was often followed by a description of what it did, rather than what made it accessible. Some responses simply stated that a feature was accessible, not explaining how it aids accessibility.



A yes or No checkbox makes the webpage more accessible for those with mobility issues as the user only needs to click, rather than typing with a keyboard (which can take a lot of movement.)

This response achieved two of the two marks available.



-The back button^{hyperlink} provided at the top left allows the user to go back to the previous page making it accessible for the user. (2)

This response achieved one of the two marks available.

Q02b

This question was very well answered, with very few responses that did not achieve two or more marks.

Q02c

This question was not very well answered. Examiners did see responses that were not appropriate for a Level 3 qualification, e.g. identifies unusual activities.

Big Data enables us to analyse patterns from past flagged ~~fraud~~ fraudulent cases, which we can use to detect in the new incoming data.

This response achieved two marks of the two marks available.

~~It can be~~ Big data can be used as data sets to train machine learning algorithms, to detect potential suspicious activity using anomaly detection - Deviates from normal behaviour patterns.

This response achieved one mark of the two marks available.

Big data can be used ^{to} ~~by~~ identifying unusual activities, which can be used to identify ~~fraudulent~~ fraudulent activities, hence fraud detection.

This response achieved no marks of the two marks available.

Q02d

This question was very well answered. As in previous years, some responses demonstrated confusion about the notation required by the question in relation to a data model. Other responses, include foreign keys where no foreign keys were required.

```
EmployeeTable ( EmpNum, Lastname)
Vehicle_Table ( AssetNum, Type)
Loan_Table (LoanNum LoanID, EmpNum*, StartDate, EndDate, AssetNum*)
```

This response achieved five of the six marks available.

```
tbl-employee - EmpNum, AssetNum*, Firstname, lastname,
tbl-vehicle - AssetNum, EmpNum*, Type, Lastname, start Date,
, EndDate.
tbl-loan - AssetNum, EmpNum, loan,
```

This response achieved three of the six marks available.

Q03ai

As with previous Explain and Describe questions, this one was not very well answered. Most responses were able to recall that image recognition algorithms are trained on photographs. Some responses mistakenly indicated that new images were compared to old images.

(2)
By compiling large amounts of images of ~~different~~^{different} species of marine mammals, the machine finds common features to certain species. When introduced to a new image, the image recognition finds similarities and identifies the species.

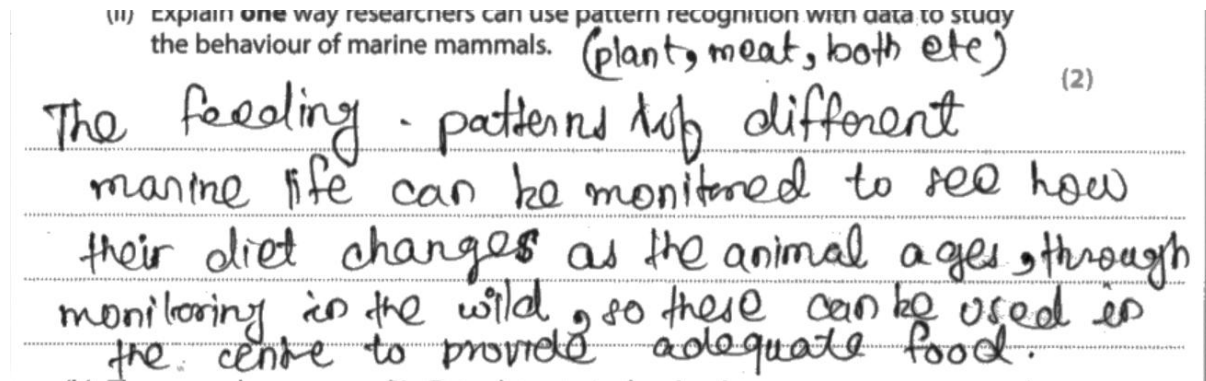
This response achieves two of the two marks available.

(2)
~~The sensors take an image of a marine mammal.~~
~~Sensors take an image of a marine mammal. The machine compares the image to similar images.~~ The machine compares the image with a labelled collection of ~~many~~ images and it was supervised trained with.

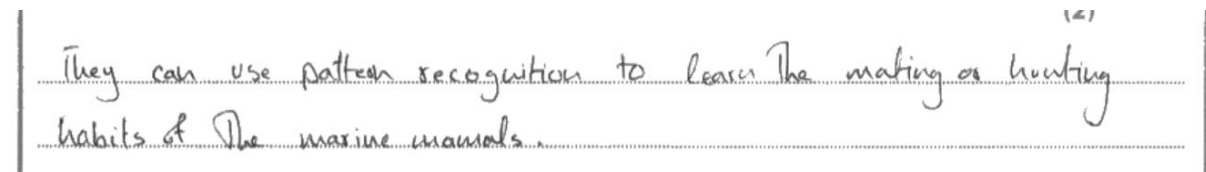
This response achieves one of the two marks available.

Q03aii

This question was not very well answered. Many responses achieved one of the marks, but there was often no expansion for the second mark. Some responses used words from the question, e.g. behaviour, rather than identifying a particular behaviour.



This response achieved two of the two available marks.



This response achieved one of the two available marks.

Q03b

This question was not well answered. The majority of responses did not address the 'benefits of processing data in the cloud'. Instead, they focused solely on the benefit to an individual user of storing their individual data in the cloud.

(2)

Scalable can increase storage and processing power according to demand. Can increase virtual machine when more data are used.

This response achieved two of the two available marks.

If the processing speed will be too slow, they can upgrade and scale it in real time which is time efficient.

This response achieved two of the two available marks.

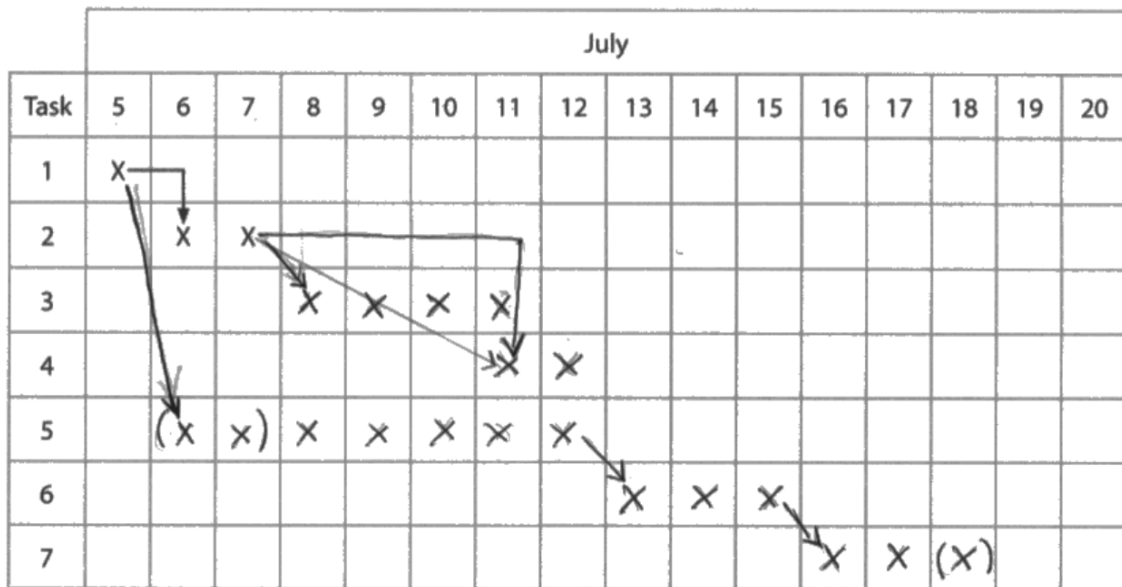
(2)

The cloud offers more scalability, where any spikes of data would not slow down processing time.

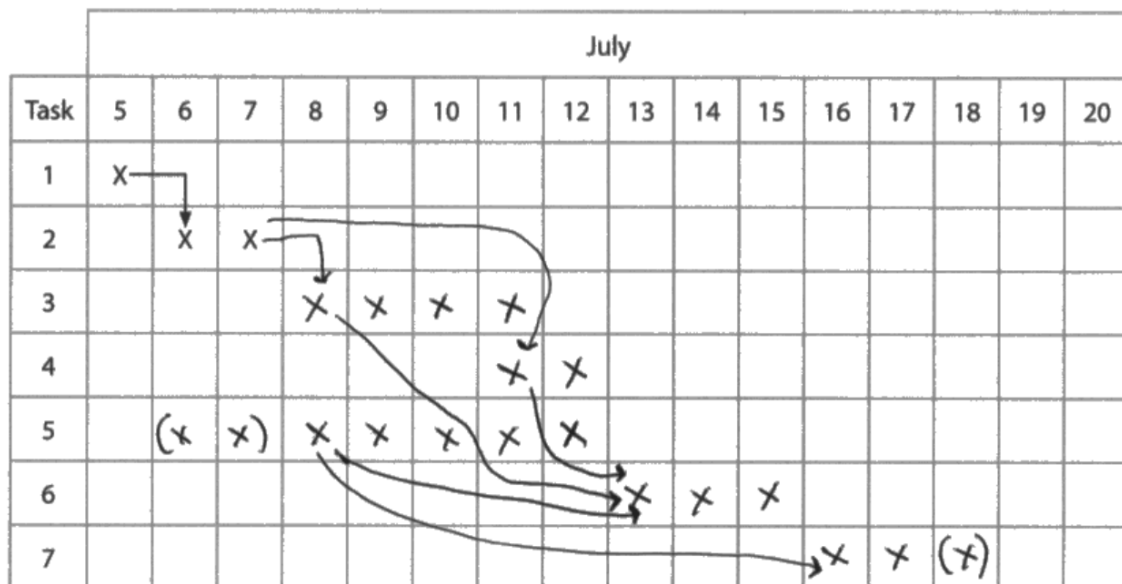
This response achieved one of the two available marks.

Q03c

This question was well answered. Many responses achieved four or more marks. The most frequently missed marks were for the three dependencies for Task 6 and the early start dates for Task 5. In some responses, the arrows had not been drawn carefully enough to go just into the target cell.



This response achieved five of the six available marks.



This response achieved three of the six marks available.

Q04a

This question was well answered. Most responses achieved marks in the middle band. Students were able to discuss failure, concurrency, and performance of a distributed database system. As with other questions, sometimes, the responses lacked development.

Distributed systems are different nodes that work simultaneously to appear as a single system to end-user. As the factories are distributed across different countries ~~the~~ and so are the distributed systems, ~~this~~ ^{this} can be beneficial as users can access ~~data~~ ^{information} of about electric scooters from a node close to their location and it will take less time to get results. ~~However~~ So the ~~data~~ ^{database} is more responsive and ^{the} performance enhances. However, as the same data is stored in different nodes and the ~~staff~~ ^{the} staff or customers can perform queries on this data concurrency can be compromised. Queries after change data however due to the distance between the nodes it will take time to propagate this ~~change~~ ^{change} to other nodes. For example if ~~an~~ an electric scooter is bought, the ~~stock~~ ^{stock} will automatically or manually be reduced however if this ~~change~~ ^{change} isn't made on the other nodes, the ~~stock~~ ^{stock} levels will be inaccurate ^{on the node} and if a customer buys ~~an~~ ^{electric} scooter from that node it may show that it is available ^{on the website} when it's actually not. This will degrade data integrity and can even result in system failures. The good thing is that as data is replicated across nodes if one system fails the rest can keep working so system doesn't face downtime.

This response achieved five of the available six marks.

Distributed Systems are multiple nodes ~~can~~ connected to each other to work on a specific target and ~~is~~ act as one whole system.

If failure occurs in one node the whole system may delay manufacturing Scooters due to inefficiency as all nodes are reliant on each other. Also, if one node fails, other nodes may not be able to access resources shared by that failed node.

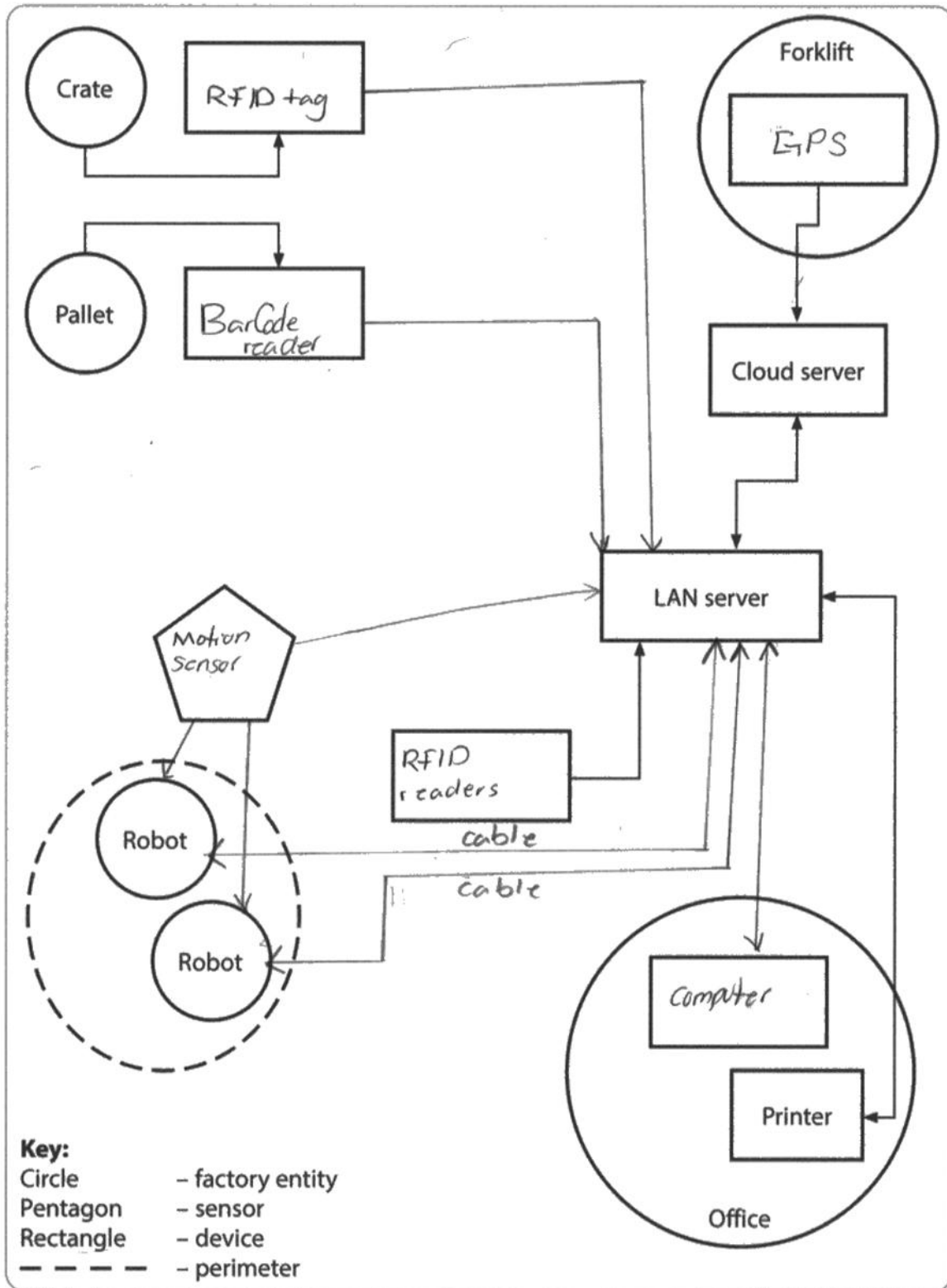
Distributed Systems can have concurrency as an issue. Concurrency is the simultaneous access to a data by multiple users. This may cause a reduction in data integrity and the reliability of data will decrease as for example if data is updated on one node by a user it may not show as updated with the user who simultaneously accessed the data with the user who updated it. This may cause also a replication of update. Inserting and deleting anomalies may occur too.

Distributed System may ~~have low per~~ suffer from low performance if a lot of data are distributed and stored across nodes, specially if nodes have inefficient operating system or less RAM storage which may cause delay in production and communication between manufacturers in different countries. Performance may deteriorate also if data transference was not encrypted which would cause malicious attack, data breach if encryption was not made. Data may be lost if backups were not ~~not~~ made too.

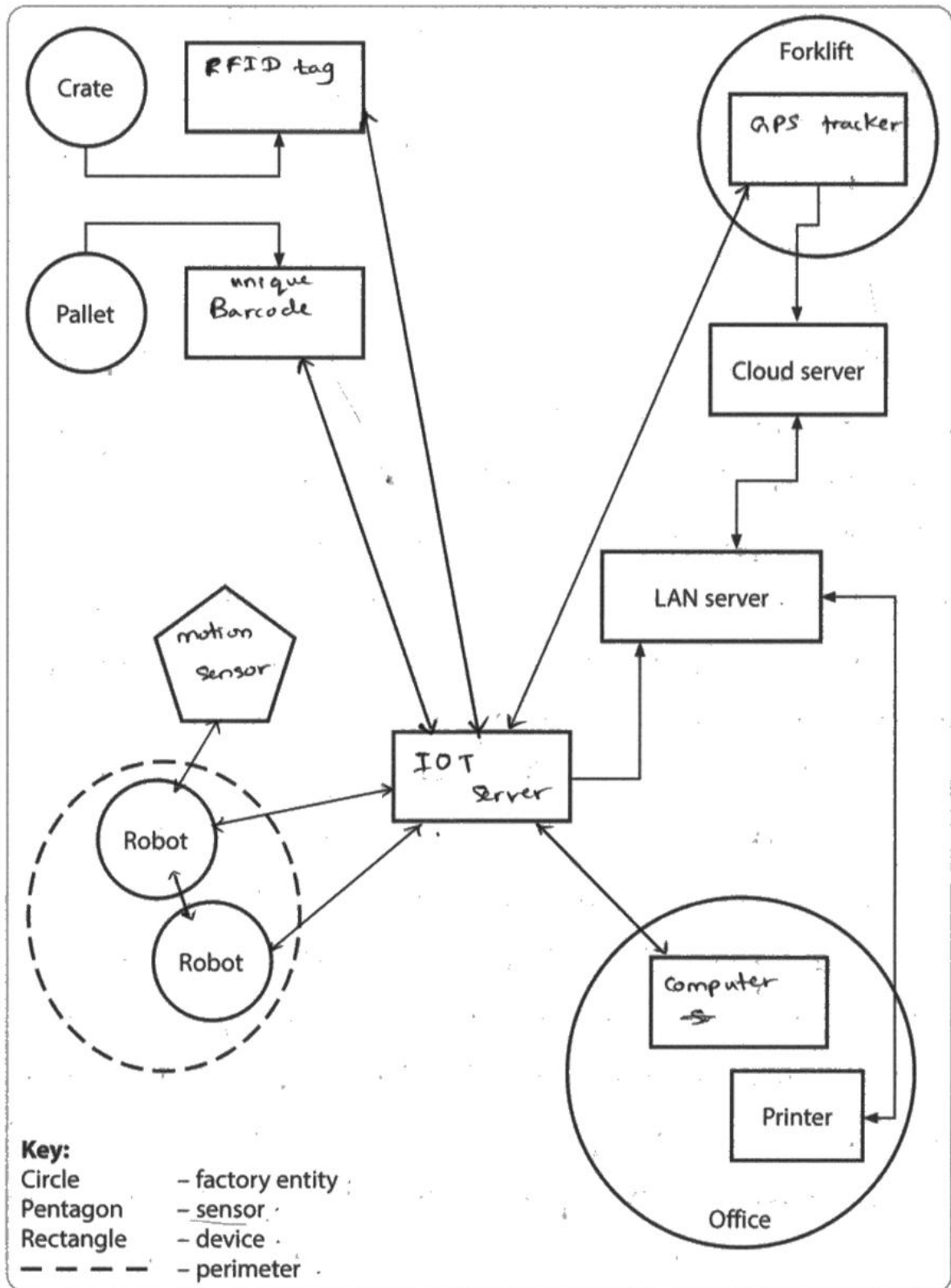
This response achieved three of the available six marks.

Q04b

This question was well answered. The majority of responses achieved five or more marks. The lack of accurate subject-specific terminology did impact the marks. In particular, the term 'IoT server' appeared frequently instead of the term 'IoT Hub'.



This response achieved nine of the available 12 marks.



This response achieved five of the 12 available marks.

Q05

This question was well answered. Most students achieved marks in the middle band. It was good to see that responses are addressing both sides of the issue in these big essays. Benefits and drawbacks were clear to see in the responses.

An agile approach refers to an iterative scheme that focuses on constant improvement of a project. It uses various methods like scrum and sprints in order to foster communication and collaboration between team members. This could be beneficial when developing this online application.

Firstly, this approach takes planning into significant consideration. The students (project members) could specify the exact needs of their client (school). Based on this, an outline of work is devised and roles are assigned to members. This will provide a structure for the project which the project leader could track to measure project progression.

Furthermore, daily meetings are facilitated (sprints), this allows clear communication amongst members to point out the differences each member would make, in what aspect they may have struggled

and help each other. This will ensure maximum efficiency in project development.

Agile approach also enable fast deployment of the project as it focuses on building a base and then consistently improving the application till it is perfected. This means the university will get a ~~fast~~ functional application with minimum delay.

However, since it is iterative, it needs to be revisited constantly to potentially improve the program. This may be time consuming. Therefore difficult for final year students to allocate time for this program along with their hectic University timetables. Making this less suitable as an approach.

Moreover, some members may not work well together, causing disagreements during meetings which could delay decision making and delay the project overall.

To conclude, agile is a complex project management framework. Since the application required isn't so complicated, a simple structure like the waterfall structure may be more suitable.

(Total for Question 5 = 12 marks)

This response achieved 11 of the 12 available marks. It demonstrates the development and application to the context that is required for a Band 3 response.

Using the agile method in project managing is easy for students. Since they are final-year computer science students, it would give them an experience of project making. Agile method has several stages, planning, design, develop, testing, ~~and~~ deploy and review. The Benefit of using agile method is that ~~as~~ they can go back on each stage to fulfill needs or correct some stages of the project.

In the planning stage the students must assign roles to have a smooth tracking on the project. Having a scrum master who would keep track and accept or reject some of the ideas. A design team where they can implement ideas to the project as its appearance and accessibility for all disabled students. A ~~development~~ development team to propose ideas and ~~the~~ stakeholders for the project. Testing the system before releasing the project to public (during development), ~~and~~ and making a small application to test out with other people to check its accessibility.

Benefits of ~~this~~ this project is that it can help the student gain an experience before future projects. It~~is~~ is a benefit for the university as they do not have to pay for a

development team. This project would help students easily find available computers in the library rather than having to go ~~to~~ around the ^{room} ~~library~~ and waste time. ~~The~~ If ~~some~~ errors are made, the students can go back into that specific stage and make changes to the ~~sys~~ project.

Drawbacks of this is that because it is a first time experience for the students, they may take time to complete the project and deploy it. Every student in the university must scan their IDs in order to enter or save a computer to use and the issue about it is that some students may not use the system or be unsatisfied. Students doing the project may want other students roles. Too many students ~~in the~~ to give roles. In each stage different teams are made and each team would have a ~~te~~ scrum leader.

Stakeholders are harder to find in a university by the students. Project might disturb students' studies.

This response achieved six of the available 12 marks. It is more generalist and high level, reflecting the type of responses examiners saw in Band 2.

Agile approach is when a Software is created following tests from ~~scoring~~ identifying equipments needed to start to testing and launching.

The students will have to first find out what they will require eg. Hardware (pc) Software or other materials to start the first step.

Once the first step is complete the students may move on to the second steps and continue till all the steps are complete where after the software will be tested and if it functions the way it is expected to it is launched for other users to use.

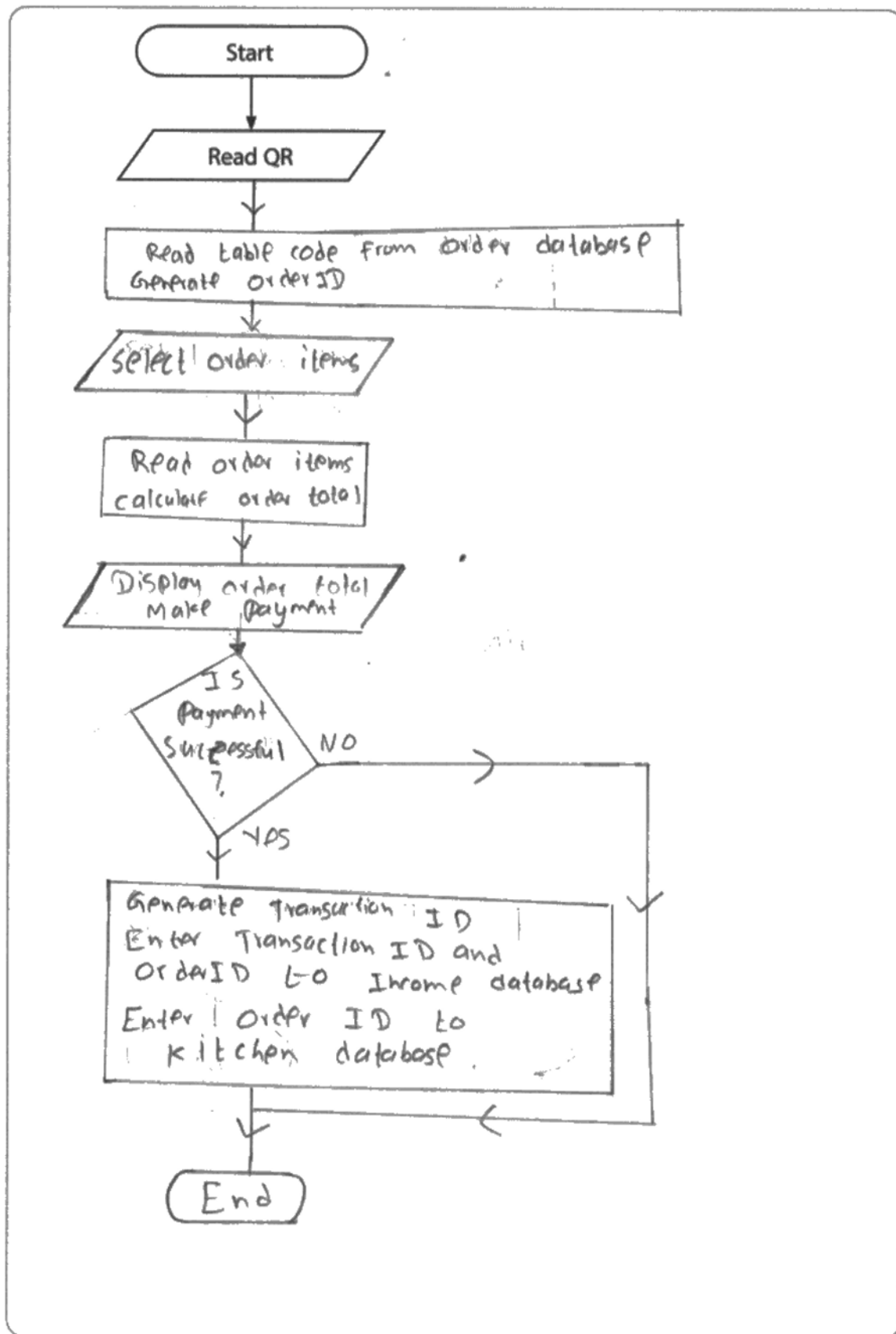
There are many advantages to an Agile approach i.e., each step is closely monitored before it is passed on to the next step. This ensures there are no mistakes and everything looks the way it is expected to work. Agile approach also makes the task easier by dividing the task into smaller sections. This means groups can work on different sections at a time and makes the work easier and faster for everyone.

There are also disadvantages to using an Agile approach i.e., If one team makes a mistake the next step cannot be started before the issue is addressed. Many mistakes can be made using the agile approach. When dividing tasks into smaller segments it can be difficult to know if the software as a whole is functioning as it has to be tested in steps. This can cause an issue at the testing stage as if it doesn't function as expected all steps must be started again to ensure proper functionality.

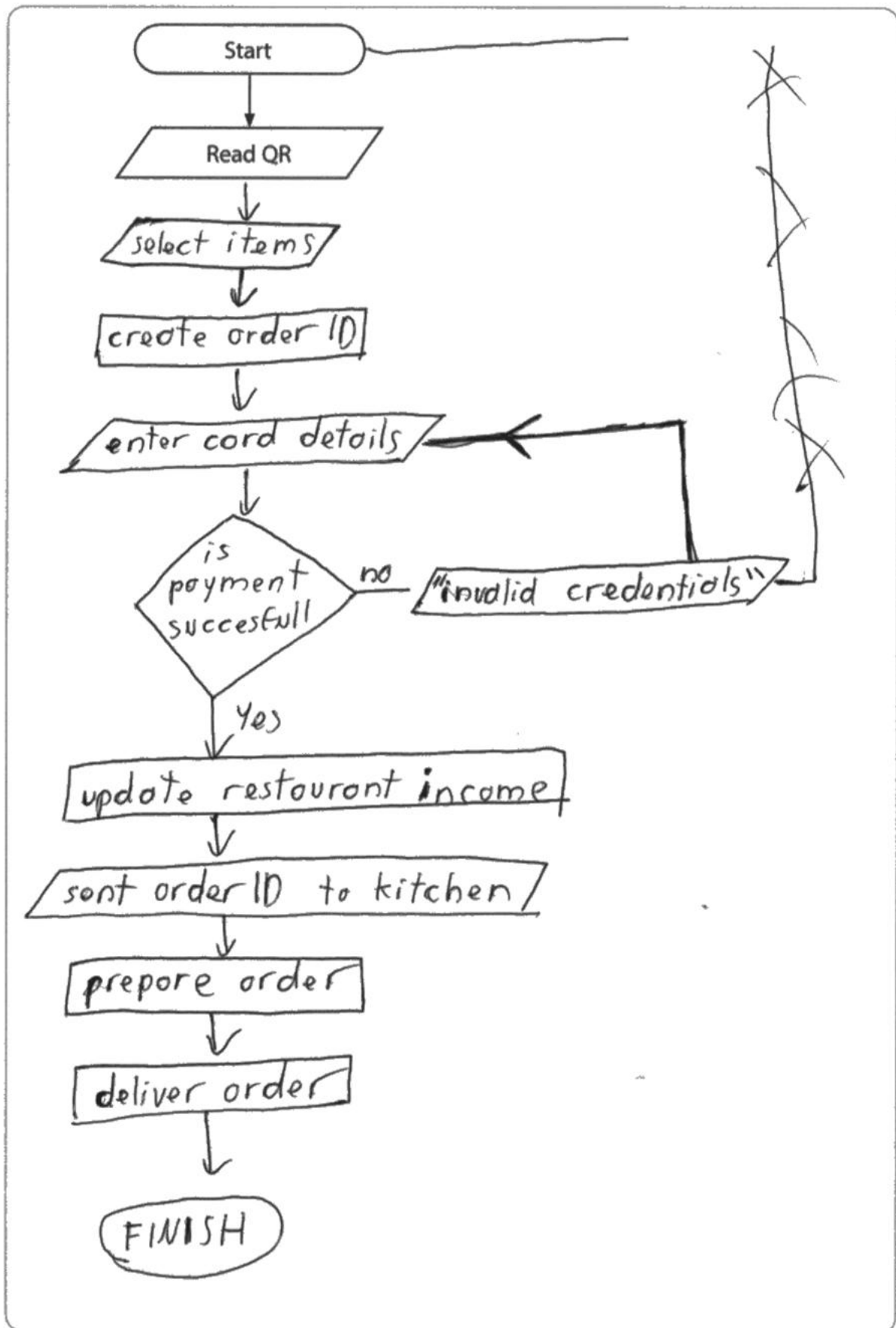
This response achieved three of the 12 marks available. It covers items that could reasonably apply to any development method and lacks application to the context. It is typical of responses that achieve marks in Band 1.

Q06

This question was quite well answered. Examiners saw many responses that achieved five or more marks. Mark points MP4, MP5, and MP7 were most frequently awarded. Some responses demonstrated confusion between a physical entity (the kitchen) and a database table (KITCHEN). The most frequently missed marks were the generation of the keys (MP1, MP6).



This response achieved eight of the ten marks available. It demonstrates accurate interaction with the database, as required in the question.



This response achieves five of the ten available marks.

Summary

- Use subject-specific terminology and notation accurately in all responses
- Provide a statement and a linked expansion for two-mark explain and describe questions
- Identify the requirements of the response from the command word used in the question
- Ensure your response is phrased in the context of the question, if there is one
- Use the bullets provided in the large essay question to structure your response

