

GCE



CCEA GCE A2
Exemplifying Examination
Performance
Digital Technology

This is an exemplification of candidates' performance in GCE A2 examinations (Summer 2018) to support the teaching and learning of the Digital Technology specification.



Permission to reproduce all copyright material has been applied for. In some cases, efforts to contact copyright holders may have been unsuccessful and CCEA will be happy to rectify any omissions of acknowledgement in future if notified.

EXEMPLIFYING EXAMINATION PERFORMANCE

GCE Digital Technology

Introduction

These materials illustrate aspects of performance from the 2018 summer A2 examination series of CCEA's revised GCE Specification in 2016.

Students' grade A responses are reproduced verbatim and accompanied by commentaries written by senior examiners. The commentaries draw attention to the strengths of the students' responses and indicate, where appropriate, deficiencies and how improvements could be made.

It is intended that the materials should provide a benchmark of candidate performance and help teachers and students to raise standards.

For further details of our support package, please visit our website at www.ccea.org.uk

Best wishes



Michael McAuley

Education Manager, Digital Technology

Email: mmcauley@ccea.org.uk

Telephone: 028 9026 1200 ext. 2209

GCE: A2 Digital Technology

ADT11: Information Systems

Grade: A Exemplar

Q1a Describe each of the following types of network.

Metropolitan Area Network

Wide Area Network [4]

Student's response

Metropolitan Area Network

A network which covers a highly populated area e.g. a city. Covers a geographical area larger than a LAN but smaller than a WAN. Connections are made using wireless and Fibre optic cable.

Wide Area Network

A network which covers a vast geographical area e.g. a country. Connections are made via public telephone lines, undersea cables and communication satellites.

Examiner's comments

The candidate has described both a MAN and a WAN, accurately and concisely, providing two separate and relevant points about each, one referring to the scale of the network, the other referring to the communication technology used in the network. In addition, appropriate DT terminology has been used. The candidate was awarded [4] out of [4].

Q1b Describe how each of the following is used in a network.

Server

Switched hub

Repeater [6]

Student's response

Server

A server processes requests for resources from nodes. It manages resources such as files, peripherals and storage and allocates processing time to nodes.

Switched hub

A switched hub is a single connection point for nodes on a network. It reads the IP address of incoming data packets and forwards them to the correct destination address.

Repeater

Amplifies data signals when a data signal is weakened due to travelling over long distances. Repeaters are also used in area where there is high levels of electromagnetic interference to amplify the data signal.

Examiner's comments

The candidate has described how a server is used in a network, accurately and concisely, using appropriate DT terminology. Two separate and relevant points about the server have been provided, one referring to the management role of the server, the other providing examples of the network resources managed by the server. The candidate was awarded [2] out of [2].

The candidate has described how a switched hub is used in a network, accurately and concisely, using appropriate DT terminology. Two separate and relevant points about the hub have been provided, one referring to the key connecting role of the hub, the other describing how the hub uses the IP address of a data packet to identify the intended recipient. The candidate was awarded [2] out of [2].

The candidate has described the key role of a repeater in a network to amplify signals, using appropriate DT terminology. However, the candidate's description of why data signals must be amplified does not use appropriate DT terminology. The candidate was awarded [1] out of [2].

Overall, the candidate has been awarded [5] out of [6].

Q1c Explain the difference between the way in which IP addresses and MAC addresses are used on a network. [6]

Student's response

An IP address is a unique address allocated to each device, by a server on a network, or by an ISP on the internet. A MAC address uniquely identifies each node on a network. IP addresses can be dynamic or static, they are not permanent. In contrast MAC addresses are permanently assigned to a node's network interface card. IP addresses are written in 4 octets, making them 32 bits long. The first octet identifies the network and the last octet identifies the individual node. MAC addresses are written as 6 hexadecimal numbers, making them 48 bits long, so they can represent a longer range of values than IP addresses.

Examiner's comments

The candidate has clearly explained that the IP address is set by the ISP and can be dynamic or static, whereas the MAC address is permanent and is embedded in the NIC. The candidate also accurately describes the format of each type of address. The DT terminology is accurate and appropriate. The candidate was awarded [6] out of [6].

Q1d Compare the impact of a cable failure on data transmission over a star network and a bus network. [6]

Student's response

On a star network each node is connected by its own separate cable to the hub. If one of these device cables fails then only resources at that node will be unavailable. All of the other nodes are unaffected. If the hub cable fails the whole network will go down. On a bus network all of the nodes are connected along the backbone cable. If one of the cables connecting a node to the backbone fails only resources at that node will be affected. However, if the backbone fails then the whole network will go down.

Examiner's comments

The candidate has accurately described both the star network and the bus network, but there is an incorrect reference to 'the hub cable' for the star network, and to 'the cable connecting the server to the backbone' for the bus network. The candidate accurately explains the impact of failure on both types of network. The DT terminology is accurate and appropriate. The candidate's response has been assessed as Band 1 and has been awarded [4] out of [6].

Q2a(i) The Open Systems Interconnection (OSI) model plays a key role in defining communication protocols.

Explain why communication protocols are necessary. [2]

Student's response

Communication protocols are necessary so that there is a set of standards that manufacturers have to adhere to. This allows software to be compatible across many different devices as they all adhere to the protocol.

Examiner's comments

The candidate's response is inaccurate and lacks the appropriate DT terminology. The phrase 'that manufacturers can adhere to' lacks meaning or context. Communication protocols do not allow 'software to be compatible across many different devices'. The candidate was awarded [0] out of [2]

Q2a(ii) Describe each of the following layers of the OSI network model.

The Application layer

The Data Link layer [6]

Student's response

The Application layer

The application layer is presented to the end user. It is in a user friendly format which we understand. It may take the form of an operating system or an email application.

The Data Link layer

The data link layer is responsible for converting the packets it receives into binary. Error detection and correction also takes place at this layer e.g. parity checking, checksums

Examiner's comments

The candidate's description of the Application layer is inaccurate and lacks the appropriate DT terminology. The application layer is not 'presented to the end user'. Nor is it 'an operating system' or 'an email application'. The candidate has been awarded [1] out of [2] for the phrase 'user friendly format'.

The candidate's description of the Data Link layer is also inaccurate and lacks the appropriate DT terminology. That it 'converts the packets it receives into binary' is not appropriate at this level. Incoming and outgoing data packets are processed in different ways. The candidate has been awarded [1] out of [2] for the phrase 'error detection and error correction'.

Overall, the candidate has been awarded [2] out of [6].

Q2b Explain how each of the following can be used to transfer data from a computer to a mobile device.

Bluetooth

Wi-Fi [6]

Student's response

Bluetooth

Bluetooth uses radio signals to transfer data signals from a computer to a mobile device. Each device must be fitted with a Bluetooth chip. The computer will taken the role of the master and the mobile device will act as the slave. A personal area network is created between the devices. The computer sends the data as radio waves.

Wi-Fi

Wi-fi uses radio waves to transfer data from a computer to a mobile device. Each device must be fitted with a wireless network interface card. They are then connected to a wireless access point which emits radio waves and allows the data to be sent. A local area network exists between the devices connected to the wireless access point.

Examiner's comments

The candidate's description of Bluetooth is inaccurate and lacks any appropriate DT terminology. The response contains phrases such as 'transfer data signals', 'personal area network' and 'sends the data as radio waves'. The candidate has been awarded [0] out of [3].

The candidate's description of Wi-Fi is also inaccurate and lacks the appropriate DT terminology. The candidate has been awarded [1] out of [3] for referring to 'a wireless access point'.

Overall, the candidate has been awarded [1] out of [6].

Q2c Fibre optic and metal cables are used for data transmission over a network. Evaluate these two types of cable with respect to data security. [6]

Student's response

Fibre optic cable consists of fine glass cores surrounded by a protective cladding. Data travels in the form of light pulses. Metal cabling consists of a metal wire surrounded by an insulator. Data travels in the form of electrical signals e.g. coaxial, Fibre optic cable provides better data security as it is almost impossible to hack into a light signal. It is also very easy to trace if it has been attempted to be hacked as the cable leaks light. Metal cable provides poor security as it emits electromagnetic radiation which makes it much more susceptible to hackers.

Examiner's comments

The candidate has described both transmission media using relevant DT terminology in a way which is reasonably accurate but which does contain incorrect or non-DT references such as 'impossible to hack into', 'easy to trace', 'the cable leaks'. The candidate's response has been assessed as Band 1 and has been awarded [4] out of [6].

Q3a Explain each of the following in terms of a relational database.

A logical data model

A physical data model [6]

Student's response

A logical data model

A logical data model specifies entities and their attributes. It also specifies primary keys and their relationships with foreign keys. It shows data after it has been normalised.

A physical data model

A physical data model is derived from the logical data model. It contains table specifications including table name and data type. It also specifies validation and constraints.

Examiner's comments

The candidate has accurately explained a logical data model using appropriate DT terminology and has been awarded [3] out of [3].

The candidate has accurately explained a physical data model using appropriate DT terminology and has been awarded [3] out of [3].

Overall, the candidate has been awarded [6] out of [6].

Q3b State **two** conditions necessary for a database table to be in each of the following.

2NF

3NF [4]

Student's response

2NF

The database table must already be in 1NF. Partial dependencies must be removed.

3NF

The database table must already be in 2NF. Non-key dependencies must be removed.

Examiner's comments

The candidate has accurately stated two conditions necessary for 2NF using appropriate DT terminology and has been awarded [3] out of [3].

The candidate has accurately explained two conditions necessary for 3NF using appropriate DT terminology and has been awarded [3] out of [3].

Overall, the candidate has been awarded [6] out of [6].

Q3c The following table show some of the students who have completed courses at the college.

CourseID	CourseTitle	TutorID	TutorName	StudentID	StudentName	DOB	StudentStatus	Result
C1	Dig Tech	T1	Babbage	S3	Green	01/01/01	Full-time	Pass
C1	Dig Tech	T1	Babbage	S5	White	04/02/01	Part-time	Merit
C4	Maths	T2	Turing	S7	Black	12/02/01	Full-time	Pass
C4	Maths	T2	Turing	S3	Green	01/01/01	Full-time	Merit
C7	Prog	T1	Babbage	S8	Gray	12/03/01	Part-time	Pass
C9	ICT	T3	Pascal	S3	Green	01/02/01	Full-time	Pass

By referring to the table, explain what is meant by each of the following.

Data duplication

Data inconsistency [4]

Student's response

Data duplication

Data duplication is the repetition of data in a database leading to increased storage space being taken up and slower access times. An example of data duplication is course title being repeated when courseID identifies it.

Data inconsistency

Data inconsistency is when a record is stored more than once in a database but has different values. An example of a data inconsistency is the date of birth for the student @Green'. It is stored twice as '01/01/01' and once as '01/02/01'.

Examiner's comments

The candidate has not used appropriate DT terminology in explaining what is meant by data duplication and has referred unnecessarily to a consequence of data duplication. 'Repetition of data' is not appropriate at this level. The candidate has correctly identified an example of data duplication from the table and had been awarded [1] out of [2].

Similarly, the candidate has not used appropriate DT terminology in explaining what is meant by data inconsistency. 'A record is stored more than once' is not correct. The candidate has correctly identified an example of data inconsistency from the table and had been awarded [1] out of [2].

Overall, the candidate has been awarded [2] out of [4].

Q3d The data needs to be normalised and an ER model produced.

Assuming that any errors in the table are corrected, normalise the data in the table to 3NF.

1NF

2NF

3NF [6]

Student's response

1NF

COURSE (CourseID; Course Title, TutorID, Tutor Name)
COURSE STUDENT (StudentID, CourseID, Student Name, DOB, Student Status, Result)*

2NF

COURSE (Course ID, Course Title, TutorID, Tutor Name)
*COURSE STUDENT (StudentID, Course*ID, Result)*
STUDENT (Student ID, Student Name, DOB, Student Status)

3NF

*COURSE(Course ID, Course Title, Tutor*ID)*
TUTOR(TutorID, Tutor Name)
*COURSE-STUDENT (Student*ID, COURSE*ID, Result)*
STUDENT (Student ID, Student Name, DOB, Student Status)

Examiner's comments

The candidate has correctly normalized the data in the table in stages to 1NF, 2NF and 3NF as required. Appropriate entity names have been provided, all attributes of each entity have been identified, and the primary key for each entity is clearly shown. The candidate has been awarded [6] out of [6].

Q3e In the box below, draw an ER model, which does not contain a many-to-many relationship, for the table. [5]

Student's response



Examiner's comments

The candidate has produced an accurate and complete ER model containing no many-to-many relationships as required. The appropriate symbols have been used throughout, the relationships between the entities are clear and the entities themselves, including the composite entity, are appropriately labelled. The candidate has been awarded [5] out of [5].

Q3f Compare and contrast ER modelling and normalisation as approaches to developing a relational database. [6]

Student's response

ER modelling gives a general overview of the relationships between different entities but it does not identify primary keys or show any of the attributes.

Normalisation removes data redundancy from the database as values are not repeated. This takes up less storage space and improves access speeds. It also reduces data inconsistencies as non-key attributes only appear once. This improves the overall completeness, accuracy and consistency of the database. Normalisation is useful for modelling relationships between primary and foreign keys and it also shows the fields which will be contained in each table.

Examiner's comments

The candidate has not provided an accurate description of ER modelling. However, the description of normalisation is accurate in that it refers to reducing both data redundancy and inconsistency. The candidate has not compared or contrasted the two as approaches to developing a relational database as was required. The candidate's language is not clear as is typified by the phrase 'normalisation is useful for modelling the relationships between primary and foreign keys'. The candidate's response has been assessed as Band 0 and has been awarded [2] out of [6].

Q4a(i) The following is an extract from the data dictionary for a stock control system.

Entity	Attribute	Key	Type	Required	Default Value
Product	ProductID	Primary	Integer	Yes	
Product	ProductName		Text	Yes	
Product	DepartmentID	Foreign	Lookup	Yes	
Product	ReorderLevel		Integer	Yes	50
Product	Description		Text	No	

Explain each of the following database terms.

Entity

Attribute [2]

Student's response

Entity

An entity is a subject about which data is held.

Attribute

Attributes are the data held about the entity. They are the fields in a table.

Examiner's comments

The candidate has provided an accurate and concise explanation of an entity using appropriate DT terminology but has not provided an accurate and concise explanation of an attribute. The candidate has been awarded [1] out of [2].

Q4a(ii) By referring to the data dictionary, describe each of the following terms.

Foreign key

Lookup [4]

Student's response

Foreign key

A foreign key is an attribute that is a primary key in another table. Department 1b is a foreign key from a department table. It creates a relationship between tables.

Lookup

A set of predefined values which can be selected from a list. Only values selected from the lookup can be entered in this field. e.g. Lookup for department 1b will only allow department 1b's that exist to be selected.

Examiner's comments

The candidate has correctly stated that a foreign key is an attribute that is a primary key in another table but has not referred to its use as a non-primary key in a table. The candidate has been awarded [1] out of [2].

The candidate has correctly described the term lookup and has referred to an appropriate example. The candidate has been awarded [2] out of [2].

Overall, the candidate has been awarded [3] out of [4].

Q4a(iii) By referring to the ReorderLevel attribute, explain how the default value will be used. [2]

Student's response

The default value will be used to show the level that a product needs to be ordered. When the amount of a product falls to this value it will have to be ordered again.

Examiner's comments

The candidate has not explained how the default value will be used in the context of populating a database. Instead, the candidate has described how the attribute itself will be used in the stock control system during day to day operations. The candidate has been awarded [0] out of [2].

Q4b(i) A company's payroll database system includes an Employee table. The following is an extract from the table.

EmployeeID	EmployeeName	JobTitle	Address	Telephone
E102	Green	Manager	Belfast	123321
E109	White	Supervisor	Lisburn	214563

Produce a SQL command which will add the following details to the table.

EmployeeID: E123
EmployeeName: Black
JobTitle: Supervisor
Address: Omagh
Telephone: 324531 [3]

Student's response

```
INSERT INTO Employee  
VALUES (E123,Black, Supervisor, Omagh, 324531);
```

Examiner's comments

The candidate has provided an accurate and complete SQL command for the specified insert operation and has been awarded [3] out of [3].

Q4b(ii) Produce a SQL command to delete employees who do not live in Belfast. [3]

Student's response

```
DELETE  
FROM Employee  
WHERE Address <> 'Belfast';
```

Examiner's comments

The candidate has provided an accurate and complete SQL command for the specified delete operation and has been awarded [3] out of [3].

Q4b(iii) The company decides to use QBE instead of SQL to create database queries. Evaluate the company's decision. [6]

Student's response

QBE is a graphical interface. It is easier to use for inexperienced users as no syntax is required. However SQL is an industry standard and results will be the same across all devices. SQL involves using its programming language to run database queries. SQL may also be much quicker to run queries for someone who is very familiar with its syntax. QBE is unable to run some complex queries in which case SQL is necessary.

Examiner's comments

The candidate has not provided an accurate description of QBE other than to state that is a graphical interface. However, the candidate's description of SQL does describe it as a programming language to run queries although it is so much more than that. The candidate's response has been assessed as Band 0 and has been awarded [2] out of [6].

Q5a Explain what is meant by each of the following:

Artificial intelligence

The Turing test [6]

Student's response

Artificial intelligence

Artificial intelligence is the study of machines to be able to exhibit the type of creativity and intelligence normally exhibited by people. It is hoped that one day machines will be able to correct their own errors, apply their own intuition and learn by doing tasks.

The Turing test

The turing test is a test to see if a player can distinguish between the typed responses of a human and a computer. The player does not know which is which. The player asks both a number of questions and if they cannot tell which is which the computer has passed the turing test.

Examiner's comments

The candidate has related artificial intelligence to quest of creating machines which can function like humans, in particular by learning and has been awarded [2] out of [3]. The candidate's explanation of the Turing Test is complete and has been awarded [3] out of [3].

Overall, the candidate has been awarded [6] out of [6].

Q5b Describe the main features of a neural network. [3]

Student's response

A neural network is made up of many nodes linked to each other by one or two way connections. Some are connected to the outside world, this provides the input and output for the system. A neural network applies weightings calculated from inputs to provide an output. It is made to function like a human brain.

Examiner's comments

The candidate has accurately described the main features of a neural network using appropriate DT terminology and has been awarded [3] out of [3].

Q5c An insurance company uses an expert system to calculate the cost of life insurance policies.

Explain what is meant by fuzzy logic. [4]

Student's response

Fuzzy logic is a method used by an expert system which uses 'degrees of truth' to make a decision as opposed to the Boolean logic normally used by computers. It uses a wide range of values when making decisions and works of probabilities as opposed to yes or no. It models the type of decision making that humans will normally perform.

Examiner's comments

The candidate has explained clearly that fuzzy logic uses degrees of truth rather than formal/Boolean logic and has stated that it mimics human reasoning. The candidate has been awarded [3] out of [4].

Q5d Describe the role of each of the following in the development of the company's expert system.

An expert systems shell

The knowledge engineer

The company's life insurance consultants [9]

Student's response

An expert systems shell

An expert systems shell provides the basic structure for an expert system. It includes an empty knowledge base where the knowledge engineer can enter the facts and rules they collect. It also contains the inference engine which allows decisions to be made based on the rules. It also contains the basic end user interface.

The knowledge engineer

The knowledge engineer is responsible for collecting facts and rules from the human expert which in this case is the insurance consultants. They do this using interviews and reading reports. They then input the facts and rules they have collected in the knowledge base.

The company's life insurance consultants

The company's life insurance consultants in this case are the human experts. They provide their knowledge and tell knowledge engineers how they calculate the cost of an insurance policy. They participate in interviews with knowledge engineers.

Examiner's comments

The candidate has explained that an expert systems shell contains the basic structure of an expert system, including components such as the knowledge base, inference engine and user interface. The response does not make clear how an expert systems shell will be used for a particular application. The candidate has been awarded [2] out of [3].

The candidate has identified the responsibility of the knowledge engineer and identified one valid method used to extract facts and rules, but does not describe in appropriate detail what the knowledge engineer then does with these facts and rules. The candidate has been awarded [2] out of [3].

The candidate's description of the role of the life insurance consultants lacks appropriate detail and the candidate has been awarded [1] out of [3].

Overall, the candidate has been awarded [5] out of [9].

Q5e The use of robotics is common in car assembly lines.

Evaluate the effectiveness of robotics instead of humans when a new version of a car is produced. [6]

Student's response

Robotics incorporates a range of disciplines including computer science, mechanical and electrical engineering. Robots are able to perform intricate operations more accurately than humans. This will lead to a higher quality end product as humans may get distracted and make mistakes. Robots also perform operations more consistently than humans who may get tired and make mistakes. This leads to a higher quality end product. Robots are also able to work in hazardous conditions where humans would be unsafe. For example spray painting cars or welding parts. This keeps humans safe and prevents injury. Robots may entail a large initial investment cost but in the long run wage bills will be reduced due to less staff being required. This is a negative impact for employees as they will become unemployed. A downside of robots is that they will required regular maintenance and testing which can be expensive.

Examiner's comments

The candidate has not explained what is involved in robotics. Instead, the response focuses almost entirely on robots per se rather than the use of robotics in car assembly lines as was required. The candidate makes a number of very general points about why robots may be preferred to humans, but fails to address the purpose of the question which concerns the production of a new version of a car. The candidate's response has been assessed as Band 0 and has been awarded [2] out of [6].

Q6a Describe the three offences defined in the Computer Misuse Act and state the penalty for each. [9]

Student's response

Offence

Unauthorised access to a computer system. This could be guessing a username and password to access a computer system and view someones files.

Penalty

Up to 2 years in prison or a fine.

Offence

Unauthorised access to a computer system with the intent to cause another crime e.g. fraud or blackmail.

Penalty

Up to 5 years in prison or a fine.

Offence

Unauthorised access to a computer system with intent to disrupt data. This could be introducing a virus to a system, deleting files or changing files.

Penalty

Up to 10 years in prison or a fine.

Examiner's comments

The candidate has identified three relevant offences and the corresponding penalties but the response does not consistently use wording from the Act and paraphrasing is used. The candidate has not identified access to 'computer material'. The Act does not refer to a 'computer system' so for the first offence the candidate has been awarded [1] out of [2]. The second offence is described accurately (other than the reference to 'computer system') and has been awarded [2] out of [2]. The third offence is incorrect. The phrase 'intent to disrupt data' is not in the Act, nor is it appropriate DT terminology. The candidate has been awarded [0] out of [2]. All three penalties are described concisely and accurately and the candidate has been awarded [3] out of [3].

Overall, the candidate has been awarded [6] out of [9].

Q6b Explain the following terms used in the Data Protection Act.

Information Commissioner

Data controller

Data subject [6]

Student's response

Information Commissioner

The information commissioner is an independent officer who oversees the implementation of the data protection act. They aim to make people aware of the data protection act and serve penalties on data controllers who misuse data.

Data controller

The data controller has the responsibility of monitoring how data is stored within a company. They must ensure that data is not misused. They must notify their intention to store data, with the data commissioner.

Data subject

This is the individual whose personal data is stored about. They are protected by the data protection act and can claim compensation if their data is misused.

Examiner's comments

The candidate's explanation of the term Information Commissioner is accurate and complete and has been awarded [2] out of [2].

The candidate's explanation of the term Data Controller does relate to an organisation but it lacks the required detail and does not contain appropriate DT terminology. 'Ensure that data is not misused' is not appropriate. The candidate has been awarded [1] out of [2].

The candidate's explanation of the term data subject is accurate and complete and has been awarded [2] out of [2].

Overall, the candidate has been awarded [5] out of [6].

Q6c Explain the main ethical considerations about each of the following.

Automated decision making

Online censorship [4]

Student's response

Automated decision making

Automated decision making involves computers making decisions based on rules and knowledge. Ethical considerations involved with automated decision making are that computers cannot show empathy.

Online censorship

This involves web pages being blocked by the government of a country. People see this as a contravention of the right to free speech. Others see this as good as it blocks inappropriate content.

Examiner's comments

The candidate has not properly addressed the ethical considerations in either automated decision making or online censorship. In the case of online censorship, however, the candidate has made one relevant point about the right to free speech.

Overall, the candidate has been awarded [1] out of [4].

Q6d Describe the main features of data mining. [4]

Student's response

Data mining is the processing of extremely large data sets in data warehouses. The aim is to identify trends and correlation in big data. Data mining commonly uses big data which is high volume, high velocity and high variety data which is impossible to be held in a normal database. Data mining is also used to spot patterns in data sets and to try and predict the trends in the future.

Examiner's comments

The candidate has accurately described the main features of data mining using appropriate DT terminology and has been awarded [4] out of [4].

Q6e An organisation decides to use cloud computing for all its data storage. Evaluate this decision with regard to data security. [6]

Student's response

Cloud computing involves storing data, software and using hardware provided by a third party, over the internet. Advantages of cloud computing are that thin clients can be used as most of the processing can be carried out by the server provided by the third party. With regard to data security cloud computing provides very good backup, archival and disaster recovery strategy's should the system be destroyed by hacking. Data can be stored on virtual servers anywhere. A disadvantage of cloud computing is that when data is transmitted between the third party server and the client it is susceptible to hacking. Data is also stored all over the world so it is much harder for the company to monitor the security of their data. It is also much harder to enforce the data protection act since data can be stored anywhere in the world. Therefore a users data could be misused. The company are relying on the third party to enforce the data protection data. When data is stored on the cloud computing company's servers it will be very secure as they will have more security measures in place. New security measures can be implemented quickly accross the entire company from the central server.

Examiner's comments

The candidate has provided a concise and accurate description of cloud computing using appropriate DT terminology, and has described the advantage of using cloud computing for data storage. The candidate does not properly address the key issue of data security as required. A large part of the response refers to the Data Protection Act. Phrases such as 'very good backup' or 'should the system be destroyed by hacking' are inappropriate. The candidate's response has been assessed as Band 1 and has been awarded [4] out of [6].



INVESTORS
IN PEOPLE

