

**SAMPLE ASSESSMENT MATERIAL**

**Level 3 Cambridge Technical in IT**

**05838/ 05839/ 05840/ 05841/ 05842**

**Unit 2 Global information**

**Date – Morning/Afternoon**

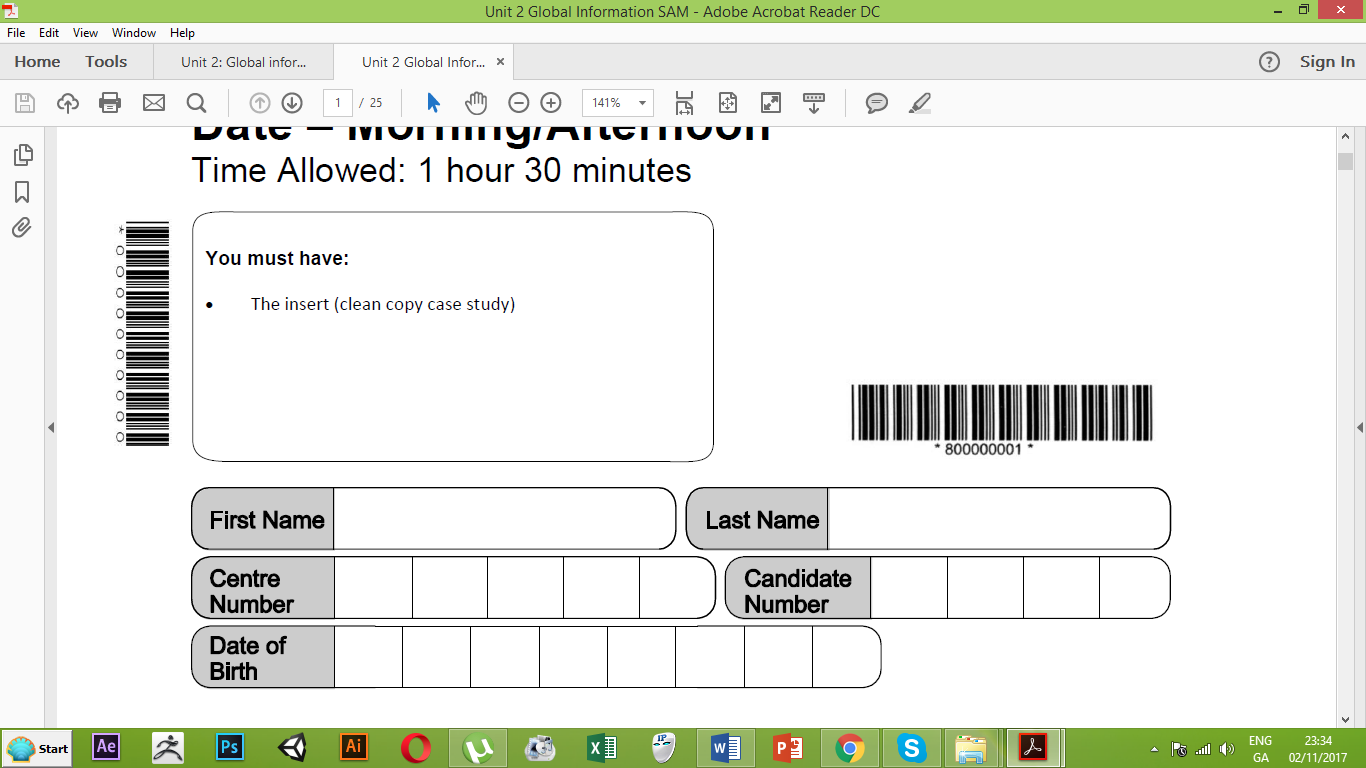
Time Allowed: 1 hour 30 minutes

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You must have:

The insert (clean copy case study)

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**INSTRUCTIONS**

* Use black ink.
* Complete the boxes above with your name, centre number and candidate number.
* Answer **all** the questions.
* Write your answer to each question in the space provided.
* Do **not** write in the bar codes.

**INFORMATION**

* The case study should be used to answer questions in Section A.
* The total mark for this paper is **100**.
* The marks for each question are shown in brackets **[ ]**.
* Quality of extended response will be assessed in questions marked with an asterisk (\*)
* This document consists of **12** pages.

**Organisational Profile**

**Introduction**

*Progress DogTravel* is a business which organises travel for dogs whose owners are emigrating from the UK. Dogs stay in the kennels before travelling to their destination country. Dogs that stay in the kennels must be up-to-date with their vaccinations and be microchipped.

**Travel Service**

*Progress DogTravel* organises all aspects of the travel process including dropping the dog off at the Animal Health Centre of the departure airport.

To enable the travel process to be started the following details are required:

* owner’s contact details;
* name, microchip number and breed of the dog;
* proposed departure date;
* destination country;
* start date of the stay at the kennels;
* contact details of the vet the dog is currently registered with;
* details of the insurance policy if appropriate;
* vaccination details;
* any preferences, e.g. airline to be used.

All aspects of the dog travelling out of the UK are organised including:

* organising and booking flights;
* DEFRA Export Health Certificate (EHC);
* EU Pet Passport (EUPP);
* mandatory checks on departure including blood tests and the checking of microchips and vaccinations, including rabies;
* vet checks on departure from the UK and arrival in the destination country;
* IATA Approved Air Kennels.

Each country has different rules for dogs arriving from the UK. For example, some countries require dogs to have up-to-date rabies vaccinations whilst others, because the UK is free of rabies, do not have this requirement.

The most up-to-date rules and regulations are consulted before a booking is taken for the travel service. *Progress DogTravel* is then able to advise owners of the relevant rules and, where appropriate, of any health and medical requirements. It will then also reserve the quarantine kennels in the country of arrival.

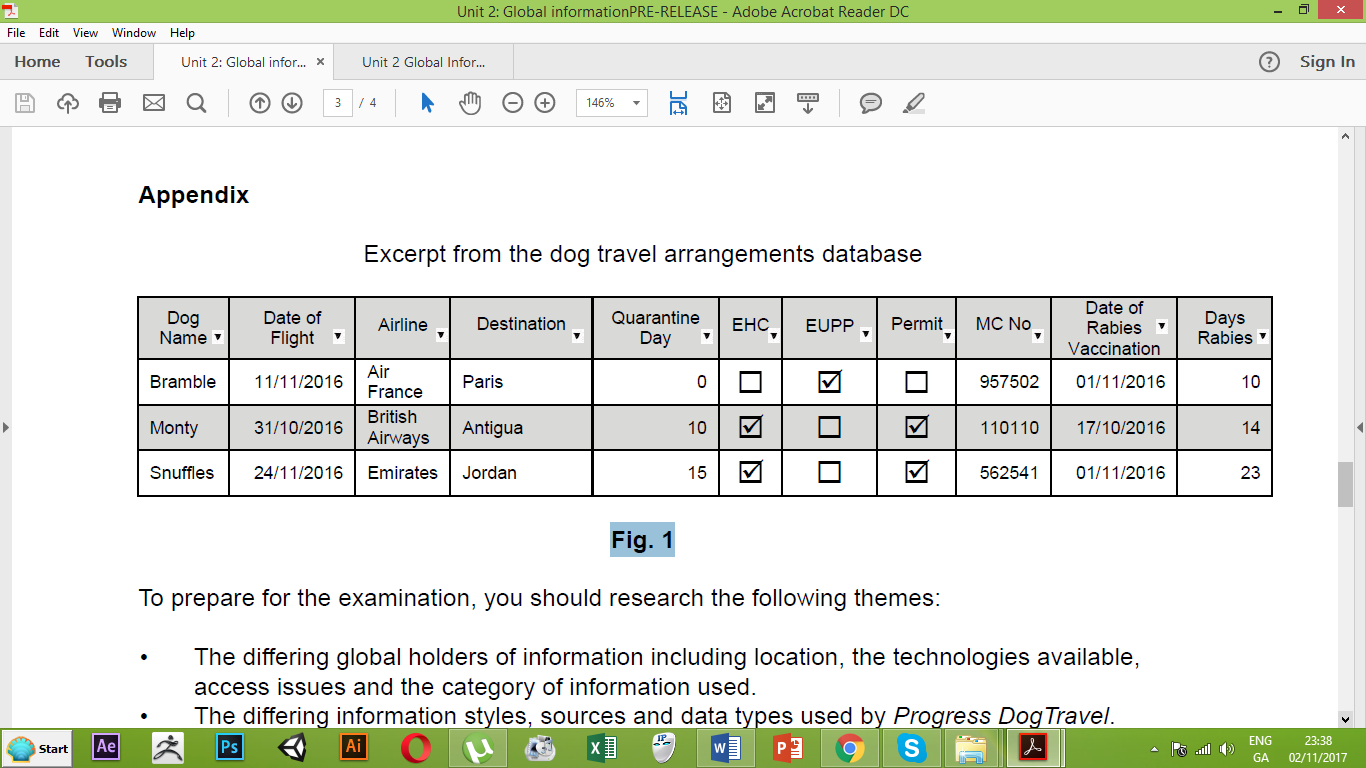
For example, if a dog is travelling to Australia then a permit from the Australian Quarantine and Inspection Service must be obtained prior to any travel arrangements being organised. On arrival in Australia, the dog must stay in quarantine kennels for a minimum of 10 days. However, if a dog is travelling to Europe then a pet passport and vaccination details are required. The dog must also have had a rabies injection at least 21 days before the dog travels.

Most of the communication with the destination countries is done electronically. Some countries require the paperwork to be scanned and emailed or uploaded to an online storage area as the dog’s flight departs the UK. There are other countries, however, where the paperwork, in hard copy format, must accompany the dog.

The dog’s travel arrangements are kept in a database which is backed up at the end of every day to a secure online storage area. Problems have begun to arise as, currently, the dog’s record is accessed using its name. This has caused confusion when two dogs have the same name. There have been several instances when the incorrect paperwork has accompanied the dog.

**Fig. 1** shows an excerpt from the dog travel arrangements database, showing some complete records. The actual database contains all the data about every dog for which travel has been arranged during the past two years. *Progress DogTravel* has incorporated validation routines into the database, such as drop down lists, to minimise data entry errors.

**Appendix**



**Fig. 1**

To prepare for the examination, you should research the following themes:

* The differing global holders of information including location, the technologies available, access issues and the category of information used.
* The differing information styles, sources and data types used by *Progress DogTravel*.
* The consequences of poor quality information on *Progress DogTravel* and its stakeholders.
* Legal requirements relating to the storage and use of information, including the impacts and consequences and how *Progress DogTravel* can conform with these requirements.
* How information can be kept securely to maintain confidentiality, integrity and availability.

1. Information about pets travelling or moving abroad is held by organisations globally with every country having different rules concerning the breadth of this information.  
   **(a)** Explain **one** reason why working in a different country might affect their ability to access and use the information.

Not all countries will have the same systems in place for the data retrieval, some still use paper and not all countries have the same levels of expectations in place. Also file compatibility, language barriers and different laws in place. **[2]**

**(b)** Analyse possible issues for organisations when transmitting sensitive data about pet ownership. First there is the confidentiality issue in transmitting data, the data protection act and the possible of sensitive data being misused. There is also the need for data verification when the file arrives and compatibility issues with accessing or using the data. **[2]**

**(c)** Some countries where the owners take their pets use paper and these papers must be scanned or accompany the owner at all times. Other than the physical difficulty in carrying this information, describe another issue that might be relevant to the information access issues in this case.

Language barriers, the ability to be able to scan, the need for hardware and software in place, there is also the case of loss of papers, or leaving the papers behind in hotels etc. The question is all about the difficulties in carrying paper around, and the need to have it at hand, students have to presume to know what difficulties there are when carrying documents from loss, ruin or theft. **[2]**

**(d)** DogTravel does mandatory checks on departure on the pets including blood tests and the checking of microchips and vaccinations, including rabies. This information needs to be live and in line with the current data stored. What does this statement mean?

When the traveller takes their pet to the airport the information before departure needs to be updated and verified on the spot, RFID chips can do this so the information on the pet and customer needs to be on the system and the system needs to be running 24 hours a day. Also the person scanning needs to be trained in how to use the hardware and how to verify the results at the airport. All this needs to be done in seconds to avoid delays. **[2]**

**(e)** The DogTravel pet registers are stored on a database. Identify one shared device which could be used to DogTravel to enable clients to access their invoices remotely.

This can be several things, it can be a booth in the office for customers to access, it can be a website therefor the hardware is the computer system, some form of hardware recognition like a dongle or verification device. You can argue the hardware needed to access and print but will need to argue the device being shared (this is a question from the original Cambridge sample and was not very clear on the answer expectations. Blame them for this one being hard). **[2]**

**(f)** Describe one characteristic of this shared device which makes it suitable for this task,

Live uplink to the company, a means of verifying the information, protections to stop it from being hacked or adapted. The live connection is the big thing. **[2]**

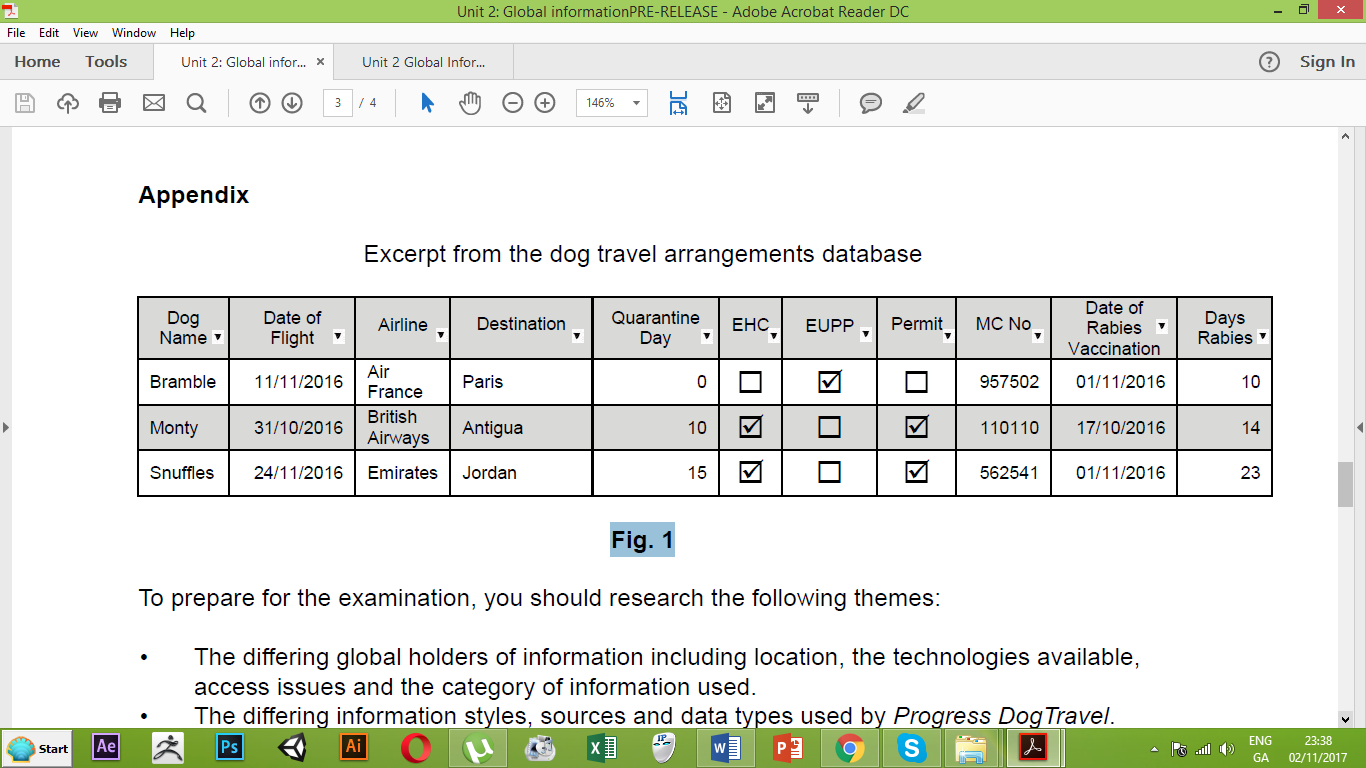
**(g)** The use of RFID microchips is standard within the UK. Using the listed data, describe why the information on these chips is comprehensive but may also not enough evidence for pets being taken abroad.

Comprehensive: (For this you will look at the table in the scenario) and explain some of the data types used and how they are relevant to pets, travel and permits. E.g. the days rabies is the difference between Date of Rabies and Date of flight and is auto generated to reduce down the need for user input and to secure the information against mistakes. There are enough data fields including city and different airlines, and the facility, (as seen from the arrows on the data fields) to filter the information.   
Insufficient: There may be fields missing such as animal gender (important if the pet is pregnant) age of the animal (important if the pet is old) illnesses known (important if the animal cannot fly due to illness) or a consideration for the country they are flying to for the customer to be able to see if they are filling in the data themselves. **[4]**

**(h)** The clients who register their pets with DogTravel may have issues accessing the registration forms. Describe how different visual, motion and cognitive disabilities can affect information input and output.

For this you need to list at least three different possible restrictions, such as the information being small on the screen to make it difficult for those with visual impairment to read, the boxes require more than just ticking for those with motor skill issues, names like EHC and EUPP may be too technical for those with cognitive disabilities. You will need to explain the problem, relate it to the table, and how that problem might manifest. For 4 marks, write about 4 issues. **[4]**

**2**  **(a)** For the **three** of the following pieces of Information or Data describe what form to it will be sourced from, what data types it will come in, validation routine used, which department is likely within a business to access and use this information and how it will benefit the business.



Data 1 Source: Pet name gained from the pet owner over the phone

Data Type: Text field

Validation Routine: Not restricted to size or input (as in words and numbers)  
 Department: kennels

Benefit: Allows the company to personalise the storage of the pets, name tags, etc. and allows the staff at the kennels to be able to identify the pets by name so that feeding is more specific.

Data 2 Source: EHC or EUPP

Data Type: Text code field, restricted to possibly a drop down menu of certificates.

Validation Routine: Drop down list  
 Department: Vaccination or immigration control.

Benefit: Allows the rfid tag to be scanned at the airport and verified against this data on whether the animal is allowed to travel. Also the vaccination department to verify if the certificates of travel are valid and up to date.

Data 3 Source: Date of rabies vaccination

Data Type: Calculated field from taking the date rabies date from flight date

Validation Routine: Set as a date field (possibly restricted to dates between)  
 Department: Vaccination department

Benefit: This data allows staff to know when to vaccinate the pet so that each day those pets that need vaccinated at the kennels can be done on a specific date so the animals can travel and the RFID tag updated to show this. [12]

**(b)** The confusion over the storage of the data using the Dogs name as the primary search field. Which search field would be better to use to access this information and how could the customer be made aware of the primary field information.

MC Number, it is the only field in the table that seems unique. More than one pet could be going to Paris on that date so those fields are out. Customers could be made aware of the field by email when they register their pets to be quarantined and vaccinated, this could then be input and verified on the database when the information is submitted against a customer code. **[2]**

**(c)** When registering their pets, the current DogTravel website uses a limited range of information formats based on the form example above. Identify **two** additional information formats that could be added to the enhanced website, justifying each of your choices.

1. Flight number field that could pick up the information from that unique number and automatically fill in the fields for flight date and destination. This would reduce down the possible errors customers could type in to their flight times, destinations or dates.

2. Text field to be able to add in details about the animal such as food allergies, habits etc. This could make it easier in the storage of the pets during the quarantine period. (Can also be flight times, to assure pick up times, previous vaccinations, vet name, length of stay etc. anything as long as there is a potential justification) **[4]**

**(d)** Using the global divide issue and the information in the scenario, technological divisions exist in the world, describe how these issues can impact on the accessing of the RFID information in an LEDC country.

First state what the global divide issue is (technologies in poorer countries as not as efficient or available for use) then state the issues, not being able to scan RFID’s the need for paper versions (you can use the answers from before) possible devices not being portable, the return issues with pets and recording travel. Then discuss the potential impact, delays, misunderstandings, extended quarantine periods, stress, and information on the chips no longer being up to date. **[2]**

**(e)** The table contains a wide range of data about the pets. Justify **one** data analysis tool the manager of the DogTravel could use to obtain useful information. They could use the data to produce an analysis of the effectiveness of the rabies vaccinations by comparing it to incidents, they can compare the travel destinations in order to increase or decrease staff during those periods, they can use the data traffic from the website or feedback forms on the website to analyse customer wants and needs and ease of use and use this to improve effectiveness or quality of service. **[4]**

**(f)** DogTravel mainly gathers information from the Web Form and Direct Customer input within their offices. Describe what is meant by obfuscation, identifying **one** piece of data from the database in **Fig. 1** as an example. Obfuscation is the process of hiding original data with random characters, a form of encryption to make it more difficult for hackers to interpret or use the data. In the table any text field would do but it would be better if it was the MC No as this is a unique field with just 6 numbers so it would be more difficult to unscramble if it was obfuscated with other numbers. **[2]**

1. **(a)** Before a kennel booking is taken from the Travel service, a list of up-to-date rules are given to the customer from the registration page in PDF format. Customers then register their pet’s details including health and medical requirements which will be in paper format from the Vets. In the space provided, demonstrate in a Data Flow Diagram, the Input, Processes and Outputs of providing the required medical information to DogTravel in order to book a kennel. [6]

Information in digital form

Rules are emailed or downloaded

Customer requests rules

Request stored

Information in digital form

Information in digital form

Request stored

Information in digital form

Customer registers pets details

Vet scans these details and sends to customer

Request stored

Information in digital form

Information in digital form

DogTravel verifies the information and registers the documents

Customer receives and forwards the details to DogTravel

Request stored

**(b)** Explain **one** feature that could affect the flow of information in the data flow diagram above.

The scanning of the documents by the vet might be inefficient, not all documents may be scanned, the scan quality may not be good enough, the time taken to scanning might be longer than expected, (any other scenario argued like this will do as well such as email verification, time out delays, size of scanned files might cause an email to bounce). **[2]**

**(c)** Describe the variance in the Standard of Information gathering in terms of Time Frame, Relevance and Validity.

Time Frame: Information that is gathered might have a time restriction such as the date of vaccination might expire if there is a flight delay. Some information gathered such as pet name will have a longer time frame than vaccination period.  
Relevance: Some information gathered will be more specific and relevant to the process such as destination when it comes to the quarantine period than others such as EUPP rather than Dog name. Other information that is relevant will include country for specific purposes such as still known to have rabies.

Validity: This is information that is needed rather than desired such as Permit compared to name. Information should not be excessive or not suitable for purpose when requested. For example pet likes is not valid whereas dietary habits may be. [3]

**(d)** Discuss the possible impacts that poor quality information could have for an online retailer. Poor quality information may cause the wrong stock to be ordered, the wrong sizes or amounts of raw materials, the wrong delivery dates etc. Poor quality information may lead the company to do irrelevant marketing or market to the wrong demographic. (Any example of how information that is wrong or not useful can be a waste of time, effort, money or force the information to have to be redone is relevant for this question) [2]

1. **(a)** Discuss the benefits and limitations of both open and closed information system structures for DogTravel and recommend which system would be better for the DMU department within the company.

Open System: This is a system that is open to be adapted, new information categories added, new fields in the database to be used for additional purposes such as marketing or evaluation. For the DMU unit this would allow them to customise their layout and their fields.  
Closed System: This is a system that is pre-set and more secure, this allows the information and layout to be standardised across departments or across companies so that staff training potentially is limited.  
DMU Decision: An open system would allow the DMU unit (Decision Making) to be able to adapt the way the program looks and to gather additional helpful information as long as they have someone to help them do so. This will allow the information to be customised for analysis purposes such as forms and feedback options to improve the effectiveness of the process. **[6]**

**(b)** Identify three logical protection measures, other than obfuscation, that could be used by DogTravel to help keep information secure. Justify why each of these measures would keep information secure.

1. Data encryption on the transfer of information through email or through the website such as https: for a secure login for the customers. This will reduce the risk to the data by protection it from unwarranted access.  
2. Internal backups of the information in order to be able to reimage the information if anything was lost or damaged, a daily or interim backup would make this more secure. This would reduce loss of data to one day, allowing the company to resume service.  
3. Secure logins and protocols for passwords to reduce the possibly data breaches from internal staff. This would reduce the risk to private information being seen by those not privileged and reduce the risk of theft of information by restricting access. **[6]**

**(c)** Explain how this method, identified above, will maintain the integrity of this data.  
Obfuscation would scramble the data on the network so that any staff member with access to the data will not be able to see the unique identifier. When the data is reopened, corrupted data would be reinitialised. This maintains integrity by reassembling the data. (This is an adapted question again from the sample specification and is not clear on how they expect you to answer, either by obfuscation or by selecting one of the other answers and explain how to secure data integrity). **[2]**

**(d)** Identify **one** reason why DogTravel is storing their backups of confidential data in an online storage facility. Justify how this action would secure the information.   
Reason: Online data storage allows the remote devices to be able to access the data such as RFID even if the company network is out of reach. It is also more accessible out of hours, easy to set up, has additional benefits such as permanence.  
Justification: Online data storage is secure in that it has SSL protections as well as reducing the physical threat to the backups. It also can store large capacity data, that has its own backups made by the data storage company. **[2]**

**(e)** Explain **two** issues DogTravel must consider when anonymising personal data.

1. This reduces the ability to use the information for direct marketing because the customer name and address for instance will be removed and so marketing will not be as direct.

2. This makes the risk to the data reduced as the information will no longer be capable of being used for blackmail. But it will also reduce the effectiveness of the data. **[4]**

1. **(a)** The manger is concerned that DogTravel customers may not be aware of changes in the legal and quarantine security measures in Australia concerning pet travel.   
   Describe and discuss the cascading impact on an extended quarantine period might have on customers whose pets are currently in quarantine, and the possible implications on the company of these changes.

First risk is that customers who have booked flights and travel who have not taken the changes into consideration may not get to travel with their pets due to the extended quarantine periods. This will have a cascading effect of disgruntled customers, longer storage periods, increased storage bills and this will have to be passed on to the customer. Second risk is that the risk to the pets within quarantine is the period is extended adds more risk to the company. Additional medical liabilities might need to be considered, and this will impact on costings to the customer. Also customers will be upset, may withdraw their pets, loss of business, added issues of communicating with the customers on the changes etc. (the important part here is the phrasing of the question, impact on customers, not the company. Students may create the perfect answer but not get the marks if they do not read ‘Customer impact’ into it).  **[5]   
(b)** Explain **two** possible effects on DogTravel if it were to lose or mishandle personal information.   
1. There are a lot of stipulations you can write here, the first being that a breach can lead to civil damages, lawsuits, upset customers, loss of business, government investigations or fines.

2. Second is a loss of faith, customer confidence and this leads to a loss of business. Also the need to increase security following a breach which is a cost to the company. **[4]**

**(c)** Explain possible actions that DogTravel should take to comply with UK legislation relating to information security and data protection.

For this the students need to go through some of the stipulations of the data protection act and apply it to the company in real terms. For instance, not keeping the data for longer than necessary, they should delete the data stored on their system after a specific period, either for the lifetime expectancy of the animal or within a year, this includes customer details. Other stipulations to easily argue include, not asking excessive information, adding physical and electronic data security measures, allowing customers access to the stored data about them. (The hardest to argue is sending the information abroad to countries where the data is not as secure but it is a good one to include). **[4]**

**(d)** Analyse the ethical implications that need to be considered when dealing with information/data within your businesses system (inputs/outputs)

This needs to include confidentiality, reducing staff access to data. The ethical implication is all about what they should, or could see, personal information, names, addresses, financial information like payment details and reducing the data protection risk. Students can bring in anonymising information here if they like, as long as they stick to the ethical and moral arguments on privacy. **[4]**

DogTravel is reviewing its information security and personal data protection measures.   
**(e)** Confidentiality is one of the principles of information security. Identify **two** other principles of information security.

1. Accuracy is always a good measure and complies with the data protection act.

2. There is also regularity of information gathering (spamming), access rights for customers, storage times and locations, using the information for other purposes for which it was gathered. What they are looking for is arguments and linking integrity, and availability to the scenario.  **[2]**