BTEC

June 2019

Level 3 Nationals
Information Technology

Unit 1
Information Technology Systems (31760H)

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications come from Pearson, the world's leading learning company. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications website at http://qualifications.pearson.com/en/home.html for our BTEC qualifications.

Alternatively, you can get in touch with us using the details on our contact us page at http://qualifications.pearson.com/en/contact-us.html

If you have any subject specific questions about this specification that require the help of a subject specialist, you can speak directly to the subject team at Pearson. Their contact details can be found on this link:
http://qualifications.pearson.com/en/support/support-for-you/teachers.html

You can also use our online Ask the Expert service at https://www.edexcelonline.com You will need an Edexcel Online username and password to access this service.

Pearson: helping people progress, everywhere

Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your learners at: www.pearson.com/uk

Grade Boundaries

What is a grade boundary?

A grade boundary is where we set the level of achievement required to obtain a certain grade for the externally assessed unit. We set grade boundaries for each grade, at Distinction, Merit and Pass.

Setting grade boundaries

When we set grade boundaries, we look at the performance of every learner who took the external assessment. When we can see the full picture of performance, our experts are then able to decide where best to place the grade boundaries – this means that they decide what the lowest possible mark is for a particular grade.

When our experts set the grade boundaries, they make sure that learners receive grades which reflect their ability. Awarding grade boundaries is conducted to ensure learners achieve the grade they deserve to achieve, irrespective of variation in the external assessment.

Variations in external assessments

Each external assessment we set asks different questions and may assess different parts of the unit content outlined in the specification. It would be unfair to learners if we set the same grade boundaries for each assessment, because then it would not take accessibility into account.

Grade boundaries for this, and all other papers, are on the website via this link:
http://qualifications.pearson.com/en/support/support-topics/results-certification/grade-boundaries.html

Unit 1: Information Technology Systems

Grade	Unclassified	Level 3			
		N	P	M	D
Boundary Mark	**0**	**8**	**16**	**29**	**42**

Introduction

This was the fifth series of the new specification for Information Technology Systems, and as such, the fifth time that assessment has been via an externally set examination rather than via centre based internal assessment. The question paper followed the same format as the January 2019 paper and the sample assessment materials published on the Pearson website. Four scenarios were used for assessment; each scenario broken down into a number of questions which assessed a range of specification topics.

Learners are expected to demonstrate knowledge and understanding of the specification topics and apply this knowledge to the given scenarios. The intention is to offer as broad a coverage as possible for all areas of the unit content. Questions have varying weightings attached to them, with 2 to 6 marks for the lower demand questions and 6 to 12 marks for questions where an extended response is required, such as discussion, analysis or evaluation. Extended response questions are marked using a level-based approach to assessment, where the overall quality of the response is considered rather than the specific number of points gained.

In line with the January 2019 paper there were five extended questions on the paper marked using a level-based approach. In this series there was one diagram question, in this instance a flow chart, also marked using a level-based approach. The remainder of the questions on the paper were assessed using a points-based approach, where learners gain marks by identifying a particular point e.g. a benefit or drawback related to the scenario and then gaining additional marks for giving appropriate expansion(s).

Introduction to the Overall Performance of the Unit

As in previous series, many learners failed to read the questions carefully and provided responses which did not answer the question set and were therefore not mark worthy. Others failed to gain all the marks available on short response questions by not looking carefully at the number of marks available for a question. It should be stressed to learners that the marks shown in brackets on the paper indicate the number of points required in this type of response.

Learners are, in general, still not coping well with the extended answer questions, where clear and detailed answers covering all sides of an argument or scenario are required. In many instances learners showed lack of knowledge of the overall specification content with many blank responses.

Individual Questions

Question 1
The scenario for this question was based on students in a college, with topics including the use of a wiki, health and safety, a firewall and office application software.

Q1a
Learners were asked to explain two benefits of using a wiki to collaborate with other students.
The question was marked using a points-based system, learners gaining one mark for each benefit and an additional mark for each expansion. Responses to this, the first question on the paper, were very disappointing with the majority of learners gaining only one mark.
Learners in general failed to understand the difference between a wiki and Wikipedia. Many responses identified the ability to edit information, however very few related this back to the scenario i.e. restricted editing by the selected group of students.
Other learners cited the benefits of being able to access a wiki anywhere with internet connection, this was given in the question and therefore not mark-worthy.
Very few responses in Q1a or Q1b discussed any other aspects of using wikis.
The following learner gained two marks overall.
The first response focusses on the need for internet access which is given in the question, therefore not mark-worthy. The second response gains two marks, one for identifying the ability to edit and the second, expansion mark, for stating that this is restricted to the group.

(a) Explain **two** benefits of using a wiki to collaborate with other students.

(4)

1 Anyone can see the information from whenever thus are provding they have internet access allowing them to all be informed on the same info.

2 Anyone in the group can edit the wiki and therefore keep their peers up to date on new information or change wrong information.

The following learner gained three marks overall.
One mark was awarded for identifying the ability to edit in the first response, unfortunately there is no expansion point. In the second response the identification mark is given for 'a wiki keeping track of updates', which implies version control and an expansion mark is given for 'accidental deletion of data will be recorded', i.e. recovering previously edited data.

(a) Explain **two** benefits of using a wiki to collaborate with other students.

(4)

1. One benefit of using a Wiki to collaborate with other students is that it can be edited from any device on any network. This means that the students will be able to work wherever they are. This will improve their productivity and work load.

2. Another benefit of using a wiki to collaborate with other students is that a wiki keeps track of updates. This means that if any incorrect information or accidential deletion of data will be recorded. This means that any students tricking the others will be easily found. It also means that the students could retrive the data that was lost.

Q1b

Learners were asked to explain two drawbacks of using a wiki to collaborate with other students.

As in Q1a learners focused on access by all, and the consequence that information is often unreliable/inaccurate. Learners failed to develop the argument into the need for validation/verification of the information or establishing protocols for accepting changes.

The following learner gained one mark for the first response. Whilst they have identified that not all edits will be agreeable (to the group) there is no indication of the need for a protocol for accepting change.

The second response focusses on the need for internet access, as this is given in the question it is not mark-worthy.

(b) Explain **two** drawbacks of using a wiki to collaborate with other students.

(4)

1 Some people might disagree with each other which will cause arguments between them. Some will not agree so this can cause many problems.

2 They will need a internet connection in order to use a wiki so some people might not be able to use wiki.

This learner was awarded three marks. In the first response the learner gains a mark for the information being inaccurate, however no expansion mark is awarded. In the second response the learner has stated that 'you are not informed when someone has edited' this implies that tracking changes ins difficult, the expansion mark is awarded for 'difficult to see when other students have made further investigations' implying that it may be difficult to identify updated content.

1 Because anyone is able to edit a wiki people may put top upload false information that will interfere with the group project so it will be illegitimate

2 You are not informed when someone has edited a wiki so it would be difficult to see any changes people have made when other students have made further investigations

Q1c
Learners were asked to explain two factors the college should consider when designing a workstation.

The question was one of the better answered questions on the paper, which is to be expected as this topic should be familiar to all learners.

However, many learners failed to gain marks by missing the 'workstation' element of the question and citing generic health and safety issues such as the need for regular breaks, not having liquids near computers and room temperature. Others lost marks by citing 'comfortable' rather than the correct 'ergonomic' or

7

'adjustable' when referring to the type of seating.

The following learner gained two marks overall. The first response gains no marks as it is generic and is not relevant to the setting up of a workstation. The second response gains the identification mark for 'wires …… in a place that is safe' and gains the expansion mark for 'so students or teachers don't fall or trip over the wires'.

Explain **two** factors the college should consider when designing computer workstations in order to minimise health risks.

(4)

1 They should consider not letting student take anything liquide in the classroom. This is because if water or drink anything fails on the wire it will endanger pupil. It can cause fire or explosion.

2 Always remember to have the wires in one place or in a place which is safe, so that students or teachers don't fall or trip over the wires. Always, get the computers checked and update the computer time to time.

The following learner was awarded four marks, with two good responses. The first response gains a mark for citing the distance between the monitor and the chair with the expansion of reducing eyestrain. The second gains the marks for storing wires in plastic covers, with the expansion to avoid tripping.

Explain **two** factors the college should consider when designing computer workstations in order to minimise health risks.

(4)

1 The distence between the monitor and the chair must be considered, because Students shouldn't be working right up close to the screen. This could cause sore eye sight problems

2 Cables and wires should be hidden or stored in plastic covers to prevent trip hazards, and to prevent them tangling together and causing electrical fault concerns.

Q1d

Learners were asked to describe how a firewall works to protect data on the laptop. Four stand-alone marks were available to learners, with no need for any links between them.

Learners who read the question carefully were able to make a reasonable attempt at this question, however many did not read carefully and gave responses explaining the role of a firewall rather than **how** it carried out its role. Many learners also seem to believe that a firewall exists purely to prevent virus and other malware attacks, with no reference at all to the need to protect data. Few learners identified that a firewall is either software and/or hardware, but many did understand the need for monitoring incoming/outgoing traffic.

The following learner failed to gain any marks. The response is an explanation of the role of the firewall, with no indication of how it works. The second sentence is correct in stating that it contains coding and had the learner explained how the coding is used a mark would have been awarded.

Describe how a firewall works to protect data on the laptop.

(4)

A firewall works as a defence against hackers and viruses. It contains tough coding which protects the data.

This helps keep her data intact and doesn't allow corruption.

The following learner gained four marks, one each for:
- monitoring incoming and outgoing traffic
- checking content by enforcing a list of rules
- identifying suspect traffic
- blocking the data packet.

Describe how a firewall works to protect data on the laptop.

(4)

A firewall works by monitoring data packets going in and out of a computer. It has a list of rules that it uses when checking packets incase of any threats such as malware. If a data packet is flagged by a rule then it will be blocked by the firewall.

Q1e

In this question learners were given additional information about the purchase of a suite of office productivity applications, rather than purchasing individual applications. They were then asked to discuss the implications of this purchase.

This was the first level-based question on the paper and as knowledge shown was in general superficial the majority of learners gained marks in the lower two mark bands.

Many responses correctly identified cost issues, in particular the savings being made from buying a suite rather than buying individual packages. Others gave responses which identified that some packages included in the suite may not be needed and therefore purchasing individual packages may be the cheaper option. Storage space on the laptop was also cited, again often related to purchasing unwanted applications. Only a minority of learners mentioned the commonality between applications and very few mentioned compatibilities with college or other students software.

The following learner was placed at the top of the lower mark band. The learner has provided a limited discussion of the lower cost of the suite. The second paragraph is somewhat confused but seems to be implying that a suite will be easier to learn than individual packages. There are major gaps in the discussion.

Discuss the implications of this purchase.

(8)

One implication of Edie purchaseing a suite of office productivity applications is that she will have to pay a higher price in one go, but she will save on the overall individual price, but the price of all the applications together will be higher, instead of her buying one application at a time when she can.

Another implication of Edie purchasing a suite of office applications is that she will have to be able to understand how they work in a short space of time, whereas if she purchases them individually she will be able to learn how they work one at a time at her own time.

The following learner was placed at the top of the middle mark band. A range of factors are discussed which demonstrate some detailed knowledge and understanding.

Discuss the implications of this purchase.

(8) Q01e

There are many implications of buying a suite of office applications rather than purchasing multiple individual ones.

Firstly, the user needs would be better for Edie as a student as the suite of applications would all have identical or similar layouts and features meaning that Edie would be more familar with each of the software, making them easy to use, navigate and understand, increasing Edie's productivity in her project when at home.

Secondly, the functionality of the software would be improved as the suite of applications would be easier to work together with, and more compatible with each other, enabling Edie to combine work of different applications, whether word processing or spreadsheets together quickly and efficiently when invesigating or analysing her project data.

The implementation of the purchase would also be greatly advantaged if Edie purchases the suite as the download or upload to her laptop would be quicker as done is one go rather than multiple times.

linked to implementation, cost would also be a factor and implication as whoever installs the software would have to be paid, if outsaved but also the overall cost of the software might be cheaper as a suite, as only one licence might be needed rather than of multiple different costs for different companies. (Total for Question 1 = 24 marks) Q01_T

Question 2
The scenario for this question was based on a football trainer who has set up a company offering training and competitions for footballers of all abilities. He would like to set up a website and include an online booking form within the website.

Q2a
Learners were asked to describe two accessibility features that should be included in the website.

In general learners were able to make a good attempt at this question. Many responses related to visual impairment with good descriptions of features included. Unfortunately, some learners were confused as to what changes a user could make to a web page e.g. changing the language or font. Others were only awarded three marks as they repeated the expansion mark e.g. by giving two features for the same impairment. A small number of learners correctly identified general features to aid usability such as navigation and help features.

The following learner was awarded two marks. The first response has no rewardable content, the learner having misinterpreted the term 'accessibility'. The second response gains the first mark for identifying the use of subtitles and gains the expansion mark for aiding the hard of hearing.

(a) Describe **two** accessibility features that should be included in the website.

(4)

1 One accessibility feature that should be included is platform compatibility. This means that Richards website should be accessable and usable on a majority of devices and browsers as then more people can acass and sign up for his training and competitions.

2 Another accessibility feature Richard could use is subtitles for any videos he may have advertising facilities/competitions. This is because players may be hard of hearing but still fully capable of playing and may be interested.

The following learner gains all four marks. The first response correctly identifies a screen reader for the visually impaired and the second response gains the first mark for identifying the use of subtitles and gains the expansion mark for aiding the hard of hearing.

June 2019

(a) Describe **two** accessibility features that should be included in the website.

(4)

1. The first accessibility feature that the website should have is the possibility to use screen readers for people who are fully blind or just partially blind. The screen reader will allow the user to access the content without the need to read it or medium reading it.

2. The second feature which should be included is the one the subtitles included in all the video content of the website making it the website fully accessible by deaf or partially deaf users.

Q2bi
Learners were asked to explain what is meant by the term 'validation'.

Responses to this question were very mixed. Many learners incorrectly cited validation being used to ensure that data is accurate or correct and subsequently gained no marks. Others correctly cited sensible, acceptable or allowable for one mark and generally gained a second mark for checking using rules or against a given format.

This learner was not awarded any marks. The first sentence is incorrect and the second is included in the question, hence neither are mark-worthy.

Explain what is meant by the term 'validation'.

(2)

Validation is check information to see if it is correct or not. Validation checks for errors.

This learner gained both marks. The response correctly states validation ensures data is reasonable for the first mark. The second mark is given for being in the correct format. An additional correct point is that the check is carried out when data is inputted, however only two marks are available for the question.

Explain what is meant by the term 'validation'.

(2)

Validation is the ability to check that the information inputted is reasonable. This will help to improve the reliability and usefulness of any data that is being used. Also, verification can be used further to check that the information inputted is correct and useful in the right format.

June 2019

Q2bii

In this question learners were asked to describe a validation rule that could be used for each of Date of birth and Email address. Again, there were very mixed responses, which is to some extent surprising as all learners must complete Unit 2 of the Qualification where setting validation rules is a significant part of creating databases. Learners were often able to describe a rule without using the formal term e.g. format check, thereby gaining only one mark.

The following learner gained 2 marks overall. In each instance a description of a validation rule is included, however there is no indication of the type of check, restricting the learner to one mark for each.

(ii) Describe a validation rule that could be used for each of the following:
(4)

Date of birth

A validation Rule that only allows a total of 8 numbers could be used so that users don't insert too little of many numbers.

Email address

A rule allowing text containing a @ and a fullstop will allow for the system to only accept email addresses.

The following learner gained all four marks. In the first response the type of check is given as a format and a description is provided. Similarly, for the email address a format check is cited along with a description. As each response stands alone learners were not penalised for repeated check types.

(ii) Describe a validation rule that could be used for each of the following:
(4 Q02bii

Date of birth

Use a calender option to allow the user You could use an input mask of example 00/00/0000 to ensure that the date entered is in the correct format.

Email address

An format check of *@*.* would ensure that an email has at least an @ sign and one . which is required for an email.

Q2biii

This question followed on from the validation questions and learners were asked to describe one other technique that could be used to minimise errors in data entry.

Many learners lost the marks by describing alternative validation checks. Where learners did cite verification they generally gained the second mark for giving double entry as the second mark.

Th following learner was typical of many. They have selected another field and provided a validation check for that, unfortunately gaining no marks.

The following learner has very succinctly answered the question and gained both marks.

Q2c

The final question in this scenario moved on from the data entry form to setting up an online booking form. Learners were asked to discuss the factors, other than ease of use and accessibility, that Richard should consider when creating the online booking system.

Once more there was a great deal of evidence of learners not reading the question carefully. In many instances learners confused the online booking form with creating the web page, however, as there is a great deal of overlap in the two activities, there was still the potential to gain marks. Unfortunately, other learners did lose marks by missing the 'other than ease of use and accessibility' part of the question and repeated, or added to, responses given in Q2a, these responses were not mark-worthy.

Many learners approached the question from the right perspective but did not go into sufficient detail to access the higher-level mark bands. The areas which were most commonly discussed were, cost, compatibility and security.

The following learner is typical of responses in the Level 1 mark band. The learner has demonstrated knowledge about two areas, security and compatibility. However, the discussion is limited and contains largely generic points.

Discuss the factors, other than ease of use and accessibility, that Richard should consider when creating the online booking system.

(8)

Another factor that should be consider considered is Security and this is because users will be inputting personal info info information information on the online booking systems It system, therefore the online booking systems must be safe and secured in order to protect users data such as to date of birth etc.

Also Richard should consider compatibility, this is to make sure the of online booking system is is compatibile on different devices as well as different sporting browsers as browser compliance should also be checked. This way users can use the the online booking systems and book book training events, all which Richard would benefit from.

The following learner was assessed in the higher mark band. It is good to note that there was an element of planning before the learner began their response, this is an examination technique which helps learners structure their responses and gain higher level marks.

The learner has gone into detail about a range of aspects including, implementation and subsequent downtime, compatibility, connectivity and the overall impact on business. There are areas which have not been considered but this is to be expected in the given time frame and does not detract from learners' ability to gain high level marks.

Discuss the factors, other than ease of use and accessibility, that Richard should consider when creating the online booking system. — compeitsbolcity

(8)

Implementafa   Productivity   connectivity

One factor that should be considered is implementation. This should be considered because for a brief period of time their booking system will be down, called downtime. This is the time required to move the data from their old system to their new one, possibly affecting their business. Therefore, they need to choose a sensible time to implement the system, for example at night. Another factor is compatibility. The online booking system should be compatible with all devices, mobile devices and personal computers alike. In addition, the online booking system needs to be compatible with the devices' operating system. If the booking system is not compatible, then the users will likely go to another football trainer, as the system would not work. Another factor is connectivity. As the booking system is online, Richard will need to be made aware that his website will not reach his entire target population, as some of them may not have access to a computer or internet connection. Therefore, he should consider having a paper copy made available as well to reach his entire target system. Finally, Richard should consider productivity. Richard should consider how much more business he will get if he puts the ona booking system online. If he will gain more business, then the move is worth

it, but if he doesn't think that he will gain more business, then the move online won't be worth it.

(Total for Question 2 = 20 marks)

Question 3

The scenario for this question was based around ERS Trading a company that sells sports goods online and in high street stores. The company offers a 'click-and-collect' service for online customers.

Q3a

The first question in the scenario for Q3 was, as is the norm, the diagram question marked using a level-based approach.

In this case the diagram required was a flow chart. It should be noted that learners **are not** required to use the BCS symbols and conventions when answering flow chart questions, however examiners are looking for some logic and decision when marking. It should also be noted that whilst a specimen response is included in the published Mark Scheme this is not definitive, there will be other possible, probably better, ways of drawing this flowchart.

The responses were in general of a reasonable standard, comparable with different types of diagram seen in previous series. Marks were often lost due to lack of any indication of decision making. In terms of applying logic, the whole range of methods were seen. It was pleasing to see that the vast majority of candidates made at least some attempt at the question, with few blanks being submitted.

The learner below gained marks in the lower mark band. There is some attempt at a logical structure, but no decisions are recorded.
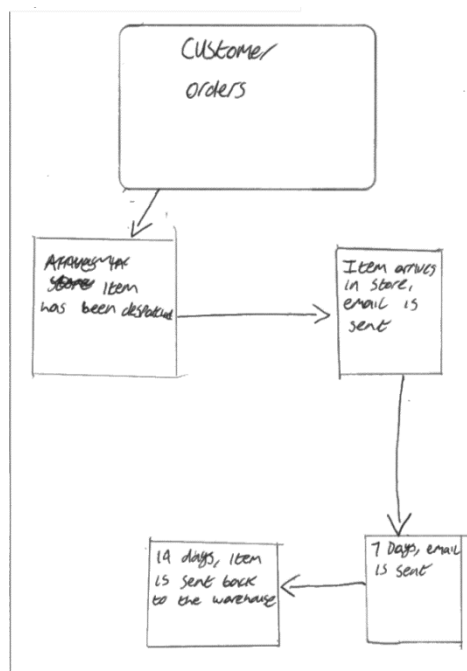
The learner below gained marks in the higher mark band. The learner has applied a logical structure to the requirements of the scenario and has included appropriate decisions. Annotations and technical language are accurate.

(a) Draw a flow chart to show the process for 'click-and-collect' ordering.

(6 Q03a
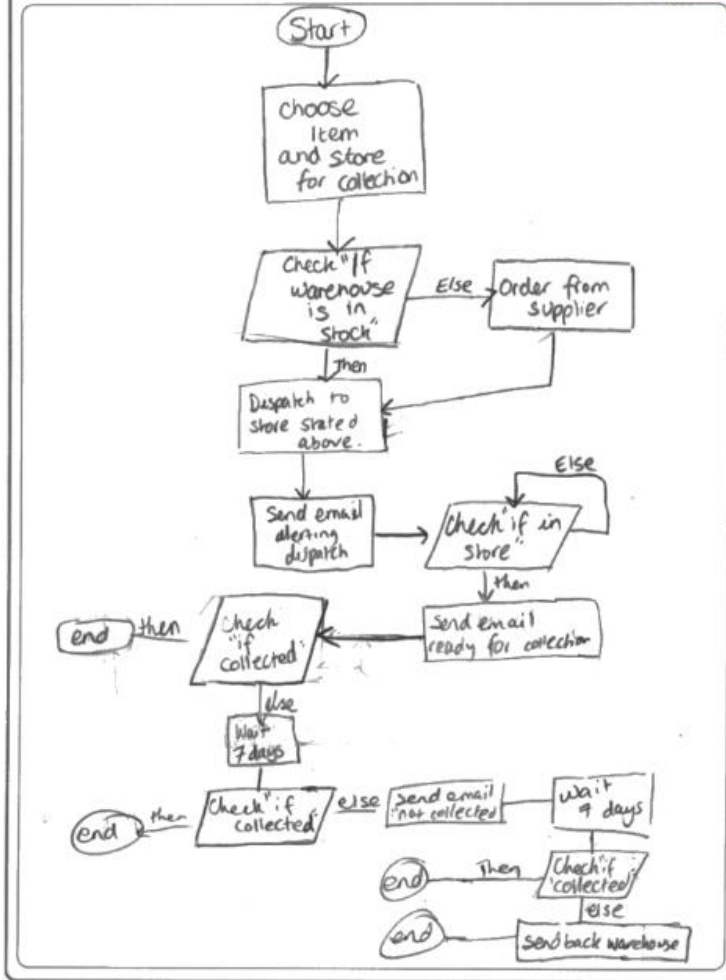
Q3bi
This question moved on to a particular ERS store and was based on using data modelling to help the manager solve a problem about the amount of time customers spend queuing to pay for goods.

It was clear from responses that many learners had little knowledge of data modelling with some very poor response being submitted. Very few learners seemed to understand the 'virtual' nature of data modelling, many citing stock control systems, EPOS terminals and self-service checkouts. In this particular question the marks could have been gained from a theoretical understanding of the topic.

The following learner gained one mark. Although no inputs are indicated, an output 'average waiting time for customers' can be awarded.

(i) Describe **one** way Philippe could use data modelling to help him solve
the problem.

(4)

Data modelling enables Phillipe to show
the average waiting time for customers
to pay for goods. Therefore from this
data model it can enable Phillipe
and his store to come up with a
solution so that the timing to for
queuing to pay for goods is reduced
and customers are satisfied.

The following learner gained four marks. One mark is for an input i.e. time spent
queuing at different times of the day. One mark for data analysis i.e. using graphs
and charts. One mark for identifying correlation of data as an output. The final
mark is awarded for determining options i.e. times to open tills to maximise staff
available.

(b) Philippe is the manager of one of the larger ERS Trading stores and is concerned
about the amount of time customers spend queuing to pay for goods.

(i) Describe **one** way Philippe could use data modelling to help him solve
the problem.

(4) Q03bi

Philippe could use data modelling to collect
data on the length of queue for customers / time
spent queuing at different times of the
day and create a chart or graph to
show any correlations in the data. Philippe
could use this data to create plans on th
which times to open more payment tills compared
to other times to maximise the staff available
to the number of customers waiting.

Q3bii

In the follow up to Q3bi learners were asked to explain two implications of using
a data model to solve this problem. The lack of understanding of data modelling,
unsurprisingly, followed through to this question. Again, many learners giving real
life examples, including stock control systems, EPOS terminals and self-service
checkouts.

The learner below gained two marks, both in the second response. The first
response is not mark-worthy as the learner is discussing how to use the data
model. In the second response the learner identified that to achieve an accurate
data model (1 mark) accurate data collection (i.e. data entry) is essential (1
mark).

(ii) Explain **two** implications of using a data model to solve this problem. (4)

1. He can use it to display data neatly and create reports/ charts that should be easy for Philippe to understand and clearly show the most popular dates and times of when customers start queuing.

2. Data used for the data model may not be accurate and could cause Philippe to waste both money and time if the charts aren't correct, this depends on how the data was collected as well.

Q3c

In this question learners were asked to describe the protocols used to govern data transmission for secure payment systems.

This produced a very wide range of responses. Many learners misunderstood the term 'protocol' and gave answers relating to legislation such as the Data Protection Act. Where learners did understand what was being asked, they often cited HTTPS and SSL to gain identification marks but were unable to add to these to gain expansion marks. Very few learners gained all four marks.

The following learner gained one mark for identifying encryption. Unfortunately, there is no expansion upon this for the second mark.

Describe the protocols used to govern data transmission for secure payment systems. (4)

The protocols used to govern data transmissions will decrypt the dat on any form of payment card. The data will then be encrypted at the data travels to the store database where any payment will be taken from the purchase made. then the details of the customers debit card are disposed of and the order is sent

The following learner gained three marks overall. There are three correct identification marks, HTTPS, Secure Socket Layer/TSL and encryption, unfortunately only two identification marks can be awarded. The expansion mark is awarded for a description of encryption.

When paying through online encryption, the protocol
used is HTTPS, which involves the use of secure
Socket layers or TSL in order to encrypt the
transactional data into a language named Cyphertext.
Through this protocol being used, the data within
a site is jumbled, and therefore inaccessible and
uninterpretable to hackers, or others with malicious
intent who are trying to steal the data for
purposes such as fraud. Through this protocol and
the use of digital certificates, only the customer
and Company server have keys to decrypt information
, and therefore, only they can read it, keeping it
Secure.

Q3d

In this question learners were asked to analyse the benefits and drawbacks for customers of the use of transactional data collected through loyalty card schemes.

As in previous questions many learners lost marks by not reading the question and giving benefits to the store, rather than the customers. This was a level-marked question, but few learners gave structured responses.

Where marks were gained they were often for discussing benefits to customers of using a loyalty card scheme e.g. money off vouchers, with a smaller number of learners citing the disadvantages of targeted marketing. Where learners discussed the storage of personal data they often confused loyalty cards with debit/credit cards and discussed the need for secure payment methods.

The following learner was assessed to be in the lower mark band. There is demonstration of some isolated knowledge and understanding, with some relevance to the scenario. The assertions are generic. They have identified the benefit of exclusive discounts and there is a very limited attempt at the drawback of a company having information.

The benefits are that you can get exclusive discounts, sometimes it has a points system in which you get points after every purchase which then can bee used to pay for other items in that store. Another benefit is that there is no visible information on the loyalty cards that means information can be stolen. The drawbacks are that people may not trust companys having their information tracking and storing purchases and another drawback is that some customers may believe that it's not worth it in the long term, them having your information in exchange for so little in comparison.

Question 4
The scenario for the final question on the paper was based around a chain of accountants. Company data is currently backed-up to a cloud-based storage system and the company is considering using cloud storage and computing for all its IT systems.

Q4a
In this question learners were asked to evaluate the cost implications for the agency of a move to cloud storage and computing.

As in previous questions many marks were lost where learners failed to read the question carefully. Many candidates gave detailed responses relating to backing up data on the cloud, despite the statement in the question that this was already being done by the agency. A significant number of learners missed the cost element of the question and gave detailed discussions about relevant areas, but with no reference to cost, hampering the availability of marks.

This was an 'Evaluate' question and to be assessed in the higher mark band learners must produce a conclusion, be this as a separate paragraph at the end of the work or via evaluative comments throughout.

The following learner was assessed in the lower mark band. There are some relevant isolated elements of knowledge demonstrated, however none show any depth of understanding. The learner has not produced any sort of evaluative comments or conclusion.

(a) Evaluate the cost implications for Frederick's Agency of a move to cloud storage and computing.

(12)

Some implications may be that it will be expensive to swap everything over to cloud. It might take a while which means you you might end up paying for current storage and cloud.

However an it might be less expensive in the long run as cloud might be cheaper than the current storage that is being used.

Another cost implication might be the cost to train the staff on the new cloud system.

money to either get it back or try and collect the data again.

The following learner was assessed at the lower end of the higher mark band. They have discussed a range of issues which demonstrate mostly accurate and detailed knowledge and understanding. Whilst there are omissions most of the points made are relevant to the scenario. The conclusion is supported by the discussion but its brevity contributes to the placement of the work at the lower end of the mark band.

Cloud computing could be seen as very cost efficient. This only requires a start up and subscription fee. With this, a range of applications and opportunities are available. Cloud computing, spread sheet and word processing applications, Cloud storage, remote working are all available.

The main office for Fredrick's Agency has a LAN, which is costly as it needs Switches, Servers, routers, devices, cables, internet connection etc. It can also be accessed remotely using a VPN. This is all costly as everything must be bought, regularly maintained (hired maintenance staff) implemented and staff need training on how to use the VPN.

Backups are already being taken place using cloud storage, so there is no need for buying security or the actual application, as it is already implemented.

Using a LAN and VPN requires lots of staff who can perform regular updates, backups and maintainence. Maintainence staff need to be hired as well as administration staff. This isn't as required when using cloud storage and computing.

Any issues or worries when using cloud computing can be supported using the free customer support staff that are employed by the cloud computing providers. This reduces the need for specialist staff.

In conclusion, Fredrick's Agency would benefit financially from switching to cloud computing and storage from using a LAN and VPN.

Q4b
The final question on the paper asked learners to discuss the implications for the agency and its staff of the moral and ethical factors of the use of information technology. The topic was well received by a minority of learners, however others clearly found this very difficult with many poor responses.

Some learners tried to relate their responses to the move by the accounts to cloud computing and discussed recycling, with varying degrees of success. Others discussed health and safety issues, drawing on the earlier question in the paper. Codes of practice and legal issued were also discussed by a minority. Overall responses were partly developed and lacked focus.

The learner below was assessed in the lower mark band. There are isolated elements of knowledge and understanding with major gaps and omissions. The discussion in general contains mainly generic points.

Discuss the implications for the agency and its staff of the moral and ethical factors of the use of information technology.

(10)

The agency must ensure they are able to adequately cater for users with disabilities. This includes owning devices such as ergonomic chairs, braille keyboards etc.
The agency must also implement policies which dictate how their employees use the system. For example, not allowing access to social media on company PCs. This ensures that no confidential/private data gets accidentally released to the public which could have legal implications for the business. The business must ensure it complies with GDPR and Computer Misuse legislation for keeping data secure and ensuring staff operate the systems lawfully. Failure to comply with this legislation could bring legal implications for the business and damage their reputation.

The learner below was assessed at the lower end of the top mark band. They have demonstrated mostly accurate and detailed knowledge and understanding, although there are some gaps and omissions. The points raised are, in general, relevant to the scenario. The discussion is well developed and consideration is given to a number of aspects.

The moral and ethical factors within companies in its use of IT are highlighted within the legislation to ensure they are met. The moral and ethical factors have implications when old systems have to be discarded following being outdated, the destruction of data has to be secure, as a result of a rise in the importance of GDPR and the data protection act, as recently updated. The consumption of ~~make~~ personal data can be exploited by malicious users and cause both financial and social damage. To ensure data is completely destroyed or transferred the agency may have the implication of hiring IT technicians to complete the process causing an increase in costs, but is an ethical and moral necessity. In terms of ethics and morals, the agency and businesses are instructed to dispose of waste in an ethical way, to preserve the environment and re-cycle as much as possible.

Staff ~~req~~ are required to put ~~those~~ their trust in the company they work for to use personal data and information in a moral and ethical manner.

The implications of abusing the data of employees can result in fines and lawsuits, as employers are given increasing responsibility of staff through GDPR and Data Protection laws.

Summary

Based on their performance on this paper, learners should:

- Ensure they read the scenario to gain an understanding of the context of the question
- Ensure they read the questions carefully to enable them to answer the question fully and gain the higher mark bands

For more information on Edexcel qualifications, please visit
http://qualifications.pearson.com/en/home.html

Llywodraeth Cynulliad Cymru
Welsh Assembly Government

Rewarding Learning

June 2019