

## **Cambridge Technicals**

### **IT**

Level 3 Cambridge Technical Certificates in IT **05838, 05839**

Level 3 Cambridge Technical Diplomas in IT **05840, 05841**

## **OCR Report to Centres June 2017**

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of candidates of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, Cambridge Nationals, Cambridge Technicals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

It is also responsible for developing new specifications to meet national requirements and the needs of students and teachers. OCR is a not-for-profit organisation; any surplus made is invested back into the establishment to help towards the development of qualifications and support, which keep pace with the changing needs of today's society.

This report on the examination provides information on the performance of candidates which it is hoped will be useful to teachers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding of the specification content, of the operation of the scheme of assessment and of the application of assessment criteria.

Reports should be read in conjunction with the published question papers and mark schemes for the examination.

OCR will not enter into any discussion or correspondence in connection with this report.

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**IT 05838 - 05842**

**Level 3 Cambridge Technical Certificate in IT 05838**

**Level 3 Cambridge Technical Extended Certificate in IT 05839**

**Level 3 Cambridge Technical Foundation Diploma in IT 05840**

**Level 3 Cambridge Technical Diploma in IT 05841**

### **OCR REPORT TO CENTRES**

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# Unit 1 – Fundamentals of IT

## General Comments:

The June 2017 exam series was the second sitting of the Cambridge Technicals in IT unit 1 examination. It was pleasing to see an increase in subject knowledge for some candidates, although there was still a significant subject knowledge gap for many candidates. Responses for some candidates appeared to be little more than general knowledge, often not demonstrating the depth of understanding required after studying this unit. It is essential that candidates have a sound understanding of the content of Fundamentals of IT, as this will provide the foundation needed to study the optional units.

When preparing candidates for this unit, centres should use a wide variety of resources. No single resource will contain all the necessary learning to allow candidates to access the highest grades for this unit. Resources endorsed by OCR contain an introduction to some subject content included in the specification. Additional materials and research will be needed to fully prepare candidates for this unit's summative assessment.

## Examination Technique

For the multiple choice questions, most candidates attempted each question. A small number of candidates still did not provide an answer for each question. Good examination technique would suggest that each question is attempted. Candidates could discount clearly incorrect answers to allow them a more informed choice for the remaining questions.

For section B of the paper, the handwriting of some candidates again made it difficult to understand what had been written. Where an examiner is unable to read an answer, no credit can be given. Centres should ensure candidates understand the need to ensure their answers are legible. In extreme cases, centres should consider whether a candidate would benefit from the use of a word processor for the summative assessment.

The answer space on the question paper would usually be sufficient for candidates to give their answer for all but the largest of handwriting. Candidates should resist the temptation to write more than is needed. Good examination technique suggests that the candidate uses succinct statements to answer the given question.

Candidates should be reminded that section B features a brief context. The context should be used in answering the question to allow full marks to be achieved.

Some candidates appeared to have learnt the mark scheme from the January paper and simply wrote answers from January for questions that appeared similar. Whilst it is good practice to provide mock examinations for candidates, it is essential that candidates fully understand all topics in the specification and are able to apply their learning to the context in the questions asked. Simply regurgitating answers from previous sessions will not result in a candidate gaining a passing mark.

## Comments on Individual Questions:

### Section A

#### Question No.

1. Answer: D. Freeware could be distributed to encourage users to purchase the full version.

2. Answer: A. Spreadsheet software cannot store atomised data in related tables.
3. Answer: B. Utility software is used to allow the user to maintain a computer.
4. Answer: B. This question asks candidates to identify which of the answers is NOT appropriate. An SMS is best used to send short text messages, which would mean that it would not be suitable to distribute a new social media policy amongst staff.
5. Answer: B. The HTTP protocol is used by a web server to deliver a webpage.
6. Answer: D. The owner of the web site has control of the content of the website hosted on a virtual server.
7. Answer: B. The diagram shows the Client/Server topology, with each edge device communicating through the central device.
8. Answer: A. To allow secure communication between different branches.
9. Answer: C. A secure telephone network in a military base is least likely to be connected to the public switched telephone network.
10. Answer: B. Due to latency, a satellite network would not be suitable to play a real-time strategy game.
11. Answer: C. An ineffective CRM process could lead to increased customer complaints.
12. Answer: C. Closed questions would lead to answers that are more concise and can be easily analysed.
13. Answer: A. Data sorting is not a feature commonly available in presentation software.
14. Answer: B. A business suit is the most suitable attire for an interview for a sales management role.
15. Answer: A. Certification is available to anyone is NOT an advantage of an employee completing training for an IT qualification as part of their training.

## Section B

- 16a. Candidates were asked to explain the purpose of RAM, ROM and Cache memory. Some candidates were able to do this successfully, although a number of candidates described characteristics of the memory types, rather than explaining the purpose. Many candidates described the caching of web-sites rather than cache memory. This may be down to poor examination technique; not reading the question correctly, or a lack of subject knowledge.
- 16b. This question required candidates to describe two characteristics of a wired Ethernet LAN. Many candidates were able to answer this question well, with most talking about dedicated bandwidth and the use of cables. Some candidates said that it was 'faster' or 'cheaper' and these answers were not worthy of credit. It is expected that at this level, candidates would be able to use technical vocabulary to describe characteristics.
17. This question was marked using a banded response mark scheme. Candidates were asked to justify the use of a router to connect to the RGIS data centre. Many candidates had a lack of understanding between a router and a hybrid device. A router is a device that

only provides routing functions. A hybrid device is one that features more than one function; often a wireless access point, modem and a switch. Many candidates gave responses that a router was cheaper, and easier to set up, which were not considered worthy of credit. Some candidates explained that a hybrid device is more suitable for a home environment and often lacks the 'business grade' features of a dedicated router. This type of answer would be placed in the top mark band.

18. This question asked candidates to explain two advantages and one disadvantage of using an off the shelf operating system. Many candidates correctly answered this question, by providing explanations linked to the context.
19. This question was marked using a banded response mark scheme. Candidates are asked to discuss the ethical issues that RGIS should include in documents it publishes to employees. To be awarded marks in the top mark band, candidates should explain more than one ethical issue, from more than one viewpoint. Viewpoints could be the employee and the employer. Some candidates scored well in this question, having clearly studied the relevant specification points. Answers could have focussed on whistleblowing, disability/gender/sexual discrimination, use of information, codes of practice, on-line safety and avoiding bias. Some candidates described a code of conduct, rather than discussing ethical issues that would be included in the documents.
- 20a. This question asked candidates to describe what is meant by the term virtual client. Some candidates scored well, although many candidates described chat bots and other Artificial Intelligence type technologies which were not worthy of credit. Lack of subject knowledge and not referring to the case study hampered candidates in their response.
- 20b. This question asked candidates to explain two limitations of virtual clients. Those that knew what a virtual client is were able to correctly explain their limitations. Many talked about the need for a network connection, and that performance could be poor if a lot of users were accessing the same host.
21. This question was marked using a banded response mark scheme. Candidates were asked to explain the benefits and limitations of RGIS using helpdesk software. Again, lack of subject knowledge prevented many candidates from scoring well in this question. Many candidates incorrectly believed that helpdesk software was an automated tool that fixed software problems without human intervention. Those candidates that scored in mark band three were able to explain at least one benefit and one limitation of using helpdesk software. Most common advantages included the use of tickets to track issues and a call history so different technicians could work on a problem. Common disadvantages included the time it took to log a ticket for quick issues and the fact that staff feel over monitored as all their actions were tracked.
- 22a. This question asked candidates to identify two attributes, other than good numerical skills, that an IT technician should have. Poor examination technique meant that many candidates gave good numerical skills as their first answer!
- 22b. This question required candidates to explain two advantages of advertising an IT Technicians job using social media. Again, many candidates failed to recognise the context in the question and simply gave general knowledge answers about the use of social media in general, rather than explaining the advantages of advertising a job. Those that did score well explained that the company may already have followers that were interested in the organisation, so would be more likely to see the advert.
- 23a. This question required candidates to explain two physical security methods that PGIS would use to prevent unauthorised access to its equipment. Many candidates scored well on this question. A small number of candidates gave answers about CCTV, which would

not prevent access as it simply allows for monitoring. These answers were not considered worthy of credit.

- 23b. This question asked candidates to explain why old computer equipment is electromagnetically wiped. Many candidates were able to correctly explain that it would ensure that no data was still on the device and so it can't be accessed by a third party if the equipment is recycled/passed on to others.

## Unit 2 – Global Information

### General Comments:

The June 2017 exam series was the second sitting of the Cambridge Technicals in IT Unit 2 examination. It was noted that many candidates demonstrated subject knowledge gaps in relation to the unit content. Centres should ensure that candidates are familiar with all areas of the unit content prior to being entered for the external examination.

The correlation between content, context and command words also appeared to be limited. Candidates should be aware of the differing command words, e.g. identify, explain, discuss, and the demands that each of these words require. Candidates should also be familiar with the concept that questions may have a specific focus. It is this focus which should be considered by candidates when composing their responses to questions.

In this unit, the pre-release case study issued provides the context for Section A of the external examination. Many candidates appeared to be unfamiliar with the context of the case study, which was 'Progress BikeSafe'. This apparent lack of familiarity limited candidate's access to many of the questions in Section A of the external examination where the questions are directly linked to this case study.

The case study also includes some research prompts for candidates. These prompts should not be ignored as the knowledge gained through completing the research will enhance accessibility to the questions in Section A.

Section B of the external examination does not require candidates to link their responses to the case study. The instruction 'You do not need the case study to answer these questions' is clearly visible at the start of section B. It was, however, noted that there was evidence of knowledge gaps from the candidates' responses in this section.

There are many resources available which can be used during the teaching of this unit. The textbook should not be relied on to provide candidates with a full and complete knowledge base for this unit.

### Comments on Individual Questions:

#### Section A

##### Question No.

This section of the external examination was directly linked to the case study, Progress BikeSafe.

1. The focus of this question was on the information styles used within the learner progress databases used in Progress BikeSafe. An excerpt from this database had been provided in the pre-release materials. The question directly related to bullet point 3 in the research points in the case study.

Part a(i) of the question required candidates to identify the information style used for the EngineSizecc field of the database. Most candidates were able to correctly identify this as being of the numerical / number data type. Part (ii) of this question then required candidates to explain why this information style had been used. Many candidates were able to provide some detail about this choice of information styles but the explanations

were, on the whole, limited to the fact that engine sizes are measured in cc's, which are whole numbers. Few candidates were able to then provide further explanations, such as a drop-down list has been used for this field which will reduce data entry errors.

Part (b) of the question required candidate to identify one field in the database which was of the Boolean information style. Many candidates were able to correctly identify one of the fields.

2. This question focussed on the use of tiered levels of access and how this could be used to maintain the security of the database. The question linked to bullet point 5 of the research points. The majority of the responses to this question were very vague, not relating to the case study. Many candidates responded with a focus on the learners having access to the database. In the case study, the groups of people who have access to the database were defined. Candidates must ensure when answering questions in Section A that the responses directly link to the case study. However, most candidates were able to access 2 of the 4 marks allocated to the question by providing generalist responses such as 'people high in Progress BikeSafe would have more access'. To access all marks allocated for this question candidates needed to provide specific examples from the case study.
3. This question was marked using a banded response method. Candidates were awarded marks based on the level of detail included in their response, and the application of their response to Progress BikeSafe. The question also incorporated the quality of the response in terms of correct use of technical terms and the coherent use reasoning. This is denoted by the use of a \* next to the question number with candidates being informed of this in the rubric on the front of the examination paper.

This question linked to bullet point 4 in the research points in the case study.

The focus of the question was on the actions that Progress BikeSafe needed to take to comply with the Data Protection Act (DPA). No credit was gained by candidates simply providing the 8 principles of the DAP, but these could be used to further explain the actions that had to be taken to comply with them.

Many candidates were able to provide one action that could be taken and the most popular action was that of security. This strategy enabled candidates to be awarded a mark in the middle mark band. There appeared to be a lack of understanding about the application of the defined action(s) to the case study. Where candidates failed to provide relevant examples, the accessibility of the higher marks within the middle mark band was negated.

To reach the highest mark band, candidates needed to provide more than one action. The defined actions needed to be applied to Progress BikeSafe with examples provided.

4. The focus of this question was on an alternative storage device that could be used to back-up the database. Candidates had to identify a suitable device, justifying their choice. This question linked to part of bullet point 1 in the research points in the case study.

If candidates failed to identify a suitable storage device, then they were unable to access the marks allocated for the justification.

Many candidates provided vague responses relating to the storage device. For example, USB and hard drive were too vague. A USB is not a storage device but the mark would have been awarded for USB Memory Stick / Flash Drive. If candidates simply answered Hard Drive, then this, again, is too vague. A hard drive could be in a computer / laptop.

Those candidates who did identify a suitable storage device were then able to access many of the marks allocated for the justification. Acceptable justification points could include being able to be taken off site, more robust than a CD or can be rewritten.

5. This question was marked using a banded response method. Candidates were awarded marks based on the level of detail included in their response, and the application of their response to Progress BikeSafe. The question also incorporated the quality of the response in terms of correct use of technical terms and the coherent use reasoning. This is denoted by the use of a \* next to the question number with candidates being informed of this in the rubric on the front of the examination paper.

This question linked to part of bullet point 2 in the research points in the case study.

The focus of this question was on the benefits and limitations of using e-mail to communicate with the part-time members of staff. To be awarded a mark in the middle mark band candidates needed to provide at least one benefit and/or limitation. Examples also needed to be provided which related to the case study, Progress BikeSafe.

Many candidates were able to describe benefits of using email. These included being able to access email on a variety of devices, emails can be stored to be accessed at a later date, attachments can be sent and group emails can be sent by Progress BikeSafe. Acceptable limitations provided by candidates included the fact that internet access is required to access emails, emails may not be checked on a regular basis and emails could be directed into a Spam/Junk folder.

The level of detail provided was the main discriminator between the middle and top mark band. To be considered for a mark in the highest mark band candidates needed to have considered more than one benefit and more than one limitation.

In addition to these requirements for the highest mark band candidates needed to provide relevant and specific examples relating to Progress BikeSafe. For example, candidates who had considered the location of Progress BikeSafe, South Lakeland, were able to provide examples relating to the intermittent and patchy Internet access that can affect a rural location with a challenging terrain for any broadband equipment.

6. The focus of this question was on the intranet, which Progress BikeSafe are considering implementing. The responses to this question demonstrated knowledge gaps relating to this area of the specification contents. The question linked to part of bullet point 2 in the research points in the case study.

Most candidates were able to provide a description of an intranet but the responses to part (b) of the question were lacking. Part (b) of the question related to the characteristics of an intranet which would make it suitable for the part-time staff to access the course details. Candidates needed to identify the characteristic before they were able to access the marks allocated for the description. Acceptable characteristics include, for example, speed, security, and accessibility.

## **Section B**

Candidates did not need to apply their responses to Progress BikeSafe in this section of the external examination.

7. The focus of this question was on an on-line clothing retailer and market research.

Part a(i) of the question required candidates to describe what is meant by qualitative data, providing an example. Many candidates were able to provide a brief description of qualitative data. Acceptable responses could include that this is opinions and is usually collected as words. The example provided needed to relate to the on-line clothing retailer. Many candidates provided an example which did not relate to this context, for example cars and houses, and so were unable to access this mark.

Part a(ii) of the question required candidates to identify two items of non-sensitive data. Those candidates who linked their responses back to the on-line clothing retailer were able to access both marks allocated to this question.

Part (b) of this question was marked using a banded response method. Candidates were awarded marks based on the level of detail included in their response. The focus of the question related to the importance of considering the collection of good quality information when creating a market research survey.

Many candidates were able to provide responses which related to collecting bad information can impact on the business of the retailer including the fact that bad decisions could be made if the information collected is not of good quality. Other acceptable responses could include the consideration of who the survey is going to be targeted at and the use of a range of different types of questions.

Part (c) related to the advantages and disadvantages of using a spreadsheet relating to the information gathered in the survey. The focus was on the use of a spreadsheet to manipulate the information. Many candidates failed to access the marks allocated for this part of the question as they focussed their responses on the ways a spreadsheet could be used to analyse the results. Analysis of the results was part (d) of the question.

Acceptable responses could include the fact that a survey could be linked to a spreadsheet, if an online survey is used, so the results can be directly entered into the spreadsheet or that data can be grouped dependant on pre-set rules / type of questions. Disadvantages could include that a spreadsheet cannot manipulate text so open-ended questions may have to be reformatted into a numerical format.

The responses for part (d) of this question did, however, demonstrate a good level of understanding about how analysis can be carried out by using a spreadsheet. Most candidates were able to achieve at least 2 marks out of the 6 allocated with the most common response being that graphs / charts can be created to show trends and patterns.

8. Many candidates failed to correctly read part (a) of this question. The focus was on the impact a security breach may have had on the customers of a company. Many candidates provided responses that related to the customer losing trust in the company or that the company would lose money/customers. Neither of these responses relate to an impact on the customer. Acceptable responses could include identity theft as personal details may have been stolen.

Part (b) of this question demonstrated a knowledge gap relating to the Computer Misuse Act (CMA). Many of the response provided were very general and mainly referred to hacking into the computer system. Candidates did not provide the level of detail required to access the 6 marks allocated to this question. An acceptable strategy for answering this question would have been to identify the actions detailed in the CMA and then provide further description as to how this had been broken during the security breach.

The focus of part (c) of this question was on the importance of having a staff training policy. Again, the responses to this question were very generic and failed to demonstrate

any depth of understanding. Acceptable response could include that a policy will ensure that it can be referred to by staff and that staff are aware of their legal obligations as these should be covered in the policy.

Part (d) of the question related to how paper records could be disposed of. A worrying number of candidates felt that recycling would be acceptable.

## Unit 3 – Cyber Security

### General Comments:

Compared to the January examination series for this qualification, candidates were far more prepared and, consequently, able to answer the questions. As a result, more candidates will have accessed the higher grades for the paper.

Whilst there should be celebration of this improved preparation, many candidates are still not answering the question that has been set. For example, question 2(a) asked candidates to reflect on the impact of a Data Security breach on candidates. Many candidates preferred to concentrate on the impact on the hotel, and so did not score marks. Similarly, candidates are not differentiating between questions where they are expected to describe an impact and ones where they have to explain. This lack of understanding means that, in many cases, the extension given to an answer is irrelevant.

### Comments on Individual Questions:

#### Section A was based on the case study and associated tasks.

#### Question 1

Parts (a) and (b) were well dealt with, although candidates from across the ability range failed to give an example for Question 1(a), as required. Similarly, whilst virtually all candidates were able to state a reason why a hacker might want to gain access to customer data, the number who actually explained why this would be done was relatively few.

Part b(ii) was misinterpreted by many candidates. The focus of the question was on targets at OCR Hotels, rather than the hotel itself. Where candidates talked about individuals, or systems, such as the Wi-Fi network, this was acceptable, but answers about the Hotel and its fundamental functions were not accessible.

#### Question 2

As mentioned above, many candidates missed the focus of this question and described impacts on the Hotel. Whilst it was sometimes possible to pick out small areas where such answers dealt with customers, these answers usually only resulted in a few marks being awarded.

Where candidates focussed on the correct element, answers were generally good, although very few candidates wrote answers that showed real clarity of answers.

As the question did not specify internal or external stakeholders, markers accepted answers that dealt with stakeholders in the widest sense. However, even with this provision, some candidates pushed the boundaries of acceptable answers and so achieved no marks. For example, the Government would be, at best, a very indirect stakeholder for OCR Hotels. This question was well answered in the main, with many candidates able to clearly identify and explain an impact.

#### Question 3

One really surprising outcome of this marking session, was the realisation that very few candidates knew the role of a title for a(i) as a means by which something may be identified and located once filed. Answers in this section, generally, were poor, but this aspect was surprising.

More candidates were able to state how the information on the target could be used, although centres are reminded that candidates should avoid repeating the question as their answer.

Section 3(b) of this question suggested that candidates are still weak on technical understanding in this part of the syllabus. Few candidates were able to suggest ways (such as questionnaire, or incidents reports), and instead gave general discussions of what could be done.

For Section 3©, most candidates were able to state a reason why the impact section should be completed, although relatively few were then able to explain this.

#### **Question 4**

Many candidates understood that an ethical hacker had the skills, and possibly the inclination, to change from being a white hat hacker to a black hat hacker and then extrapolate the impacts from this. However, hardly any attempted to evaluate these implications, other than to give a vague description of a negative or positive impact.

**Section B assessed knowledge from across the syllabus and is not linked to the scenario.**

#### **Question 5**

##### Section 5(a)

This question again suggested a lack of technical understanding, with few candidates able to state an intrusion test, and very few able to describe one. Many candidates gave intrusion detection systems as an answer and missed the fundamental focus of the question.

##### Section 5(b)

Many candidates were able to give a good answer about why a company should be employed. Answers included the absence of bias, or the benefit of looking at something with a fresh pair of eyes, whilst others compared the likely relative skill levels between a company and an individual. However, few candidates gave a second answer, or, if they did, this was effectively a repeat of the first answer.

##### Section 5(c)

As with part A of this question, section C suggested a lack of technical understanding. For those candidates who realised that a hardware control was a form of security other than software, many scored well here, although they sometimes lacked a full description. However, others focussed on software controls, or, apparently guessed at the answer.

#### **Question 6**

##### Section 6(a)

This section required candidates to state how income could be generated. Many candidates understood the general gist of the question, but, having talked about accessing data, for example, then failed to complete the circle by making the point about how income could be generated.

##### Section 6(b)

A very few candidates were able to give a good description of cryptography in this section.

##### Section 6(c)

Similarly, many candidates stated that encryption was a method of making data inaccessible. This answer had been specifically excluded by the reference to cryptography in the question.

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