



Please write clearly, in block capitals.

Centre number

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Candidate number

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Surname

Forename(s)

Candidate signature

Levels 1 and 2 Award

INFORMATION TECHNOLOGY

Fundamentals of IT

Specimen 2016

Morning

Time allowed: 1hr 30mins

Instructions

- Use black ink or black ball point pen. Use pencil only for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work that you do not want to be marked.
- You must **not** use a calculator.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.

Advice

- Some questions will require you to shade lozenge(s). Follow the instructions below.


For each answer completely fill in the circle alongside the appropriate answer.


CORRECT METHOD



WRONG METHODS



If you want to change your answer you must cross out your original answer as shown. 

If you wish to return to an answer previously crossed out, ring the answer you now wish to select as shown. 

Scenario

You have a part-time job at your local dental practice. Wasim is the practice administrator and looks after the computer systems. Wasim has asked you to help him to improve the use of technology in the dental practice.

The dental practice already has a cabled network installed.

0 1

Shade **one** lozenge to show which of the following network types is most likely to be installed in the dental practice.

[1 mark]

- A CAN ☐
- B LAN ☐
- C PAN ☐
- D WAN ☐

The dental practice's network is connected to the internet. The internet connection allows the dental practice staff to access a payment verification web service as well as useful websites containing dental information.

0 2

Shade **one** lozenge which **best** describes the internet?

[1 mark]

- A a network of networks ☐
- B a system that allows access to authorised persons only ☐
- C a system that allows access to local resources only ☐
- D the World Wide Web (WWW) ☐

0 3

Explain what is meant by the term 'web service'.

[2 marks]

0 4

Wasim wants to make the network more flexible by converting the existing wired network to a wireless (Wi-Fi) network.

Shade **two** lozenges to show what would need to be installed to create the Wi-Fi network.

[2 marks]

- | | |
|--|--------------------------|
| A Wireless Access Point | <input type="checkbox"/> |
| B Wireless Communications Console | <input type="checkbox"/> |
| C Wireless Distribution Primer | <input type="checkbox"/> |
| D Wireless Network Interface Card | <input type="checkbox"/> |
| E Wireless UTP Cable | <input type="checkbox"/> |

0 5

State **three** possible advantages to the dental practice of converting to a Wi-Fi network

[3 marks]

- 1)

- 2)

- 3)

0 6

Define the term 'hardware'.

[1 mark]

0 7

Shade **two** lozenges to show which of the following categories of user are most likely to use the computer systems in the dental practice.

[2 marks]

A Developer

☐

B End user

☐

C Researcher

☐

D Technical user

☐

E Patient

☐

0 8

The dentist takes X-rays of a patient's teeth.

Shade **one** lozenge to show what format is the X-ray **most** likely to be stored as.

[1 mark]

A Image

☐

B Numeric

☐

C Boolean

☐

D Sound

☐

0 9

The office software in the dental practice is out of date and needs to be replaced. Give **two** reasons why Wasim needs to ensure that the software is licenced and bought from a trustworthy, reputable seller.

[2 marks]

1	0
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Wasim has heard about open source office software. Explain what open source software is.

[2 marks]

1	1
---	---

When Wasim installs new software it asks him for the product key, which he enters. The software then asks him if he wants to go to the company website to register the software.

Explain why it is important to register software after it is installed and the drawbacks of **not** registering it.

[4 marks]

1	2
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Using examples, describe **two** ways that the dental practice's software could be configured and say why these changes might be useful to the dental practice.

[4 marks]

1 3

The dental practice manager has been investigating if the use of web analytics would be useful for the practice.
Explain what is meant by web analytics.

[2 marks]

1 4

The dental practice has a website that uses cookies. Explain what is meant by a cookie.
Your answer should include an explanation of what cookies do and what they can be used for.

[3 marks]

1 5

The dental practice takes patient privacy very seriously. Shade **one** lozenge which best describes how the patient data may be kept secure.

[1 mark]

A Copyrighted

☐

B Encrypted

☐

C Hidden

☐

D Off-site

☐

E Updated

☐

1 6

Explain **three** methods that Wasim could use to make sure that the Wi-Fi network is secure and protected from unauthorised access.

[3 marks]

1 7

State **one** advantage of using cascading style sheets (CSS) alongside hypertext mark-up language (HTML).

[1 mark]

1 8

The practice manager has installed a piece of anti-virus software.

Shade **one** lozenge which best describes the purpose of anti-virus software?

[1 mark]

- | | | |
|----------|--|-----------------------|
| A | software to prevent unauthorised access to the computer | <input type="radio"/> |
| B | software that encrypts patient data | <input type="radio"/> |
| C | software that detects computer viruses and destroys them | <input type="radio"/> |
| D | software that automatically installs computer viruses | <input type="radio"/> |

Name **three** stages of the IT system life cycle.

[3 marks]

Stage 1

Stage 2

Stage 3

2	0
---	---

Wasim wants to make sure that all the IT system changes being made do not cause problems for the practice. He has asked you to explain how using the IT system life cycle could help.

Use examples to explain how **three** of the stages of the IT system life cycle could be used to assist the practice when making changes.

You may give examples of the stages you named in **Question 19**, or of other stages.

[6 marks]

The 'Internet of Things' (IoT) is an emerging technology. The IoT is where common everyday devices like smart TVs, fridges or heating systems are connected over the internet. They could 'talk' to us, other applications, and each other. The devices can be made to work in smart ways. For example a heating system could detect that you had left the house and automatically turn off/down the heating to save energy.

[2 marks]

The dentist's receptionist uses a piece of software to manage appointments and patient payments. This software has a specific HCI design.

Your discussion should include an explanation of:

- what HCI design is used for
- what factors should be taken into account in an HCI design
- why HCI design is important.

[9 marks]

[illegible]

[illegible]

Case study

2	3
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The dental practice is making increasing use of web technologies to engage patients and the wider public. Their website contains a rich mix of multimedia resources and is based around HTML5/CSS technologies. The appointments database, containing details of patients, the practice staff and the appointments, is connected to the website so that patients can book appointments online as well as over the telephone. Wasim has been watching recent news reports of cyber-attacks, security breaches and system outages at major companies. He has noticed that these issues are becoming more common and that the possible damage to the dental practice's business could be serious if they were to become a victim of an attack.

Answer the following questions about the dental practice and the security of their IT systems. You must support your answers using relevant knowledge and skills developed from across the entire specification.

[24 marks]

2	3	.	1
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Authentication and authorisation are two important aspects of any IT system.

State what authorisation is and, using relevant examples from the IT systems you have created during this course, describe **two** common authorisation methods that the dental practice could use.

[3 marks]

2	3	.	3
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The dental practice has decided that it will introduce two-factor authentication and the requirement for strong passwords for all practice staff.

Describe **two** advantages and **two** disadvantages to the dental practice of introducing two-factor authentication and strong passwords.

[6 marks]

2	3	.	4	Access to the secure appointments database is strictly controlled.
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Discuss, using examples from IT systems you have created during this course, **two** methods that could be used to control access to the appointments database.

[6 marks]

[illegible]

END OF QUESTIONS

Level 1/2 Award

INFORMATION TECHNOLOGY

FUNDAMENTALS OF IT

Mark scheme

Specimen materials

Version 3.5

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the learners' responses to questions and that every associate understands and applies it in the same, correct way. As preparation for standardisation each associate analyses a number of learners' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of learners' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this mark scheme are available from aqa.org.uk

Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, ie if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student's answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the Indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

Qu	Marking guidance	Total marks
1	<p>Shade one lozenge to show which of the following network types is most likely to be installed in the dental practice.</p> <p>Marks for this question: AO1 = 1</p> <p>B (LAN);</p> <p>R. if more than one lozenge is shaded.</p> <p style="text-align: right;">Maximum 1 mark</p>	1
2	<p>Shade one lozenge which best describes the internet?</p> <p>Marks for this question: AO1 = 1</p> <p>A (a network of networks);</p> <p>R. if more than one lozenge is shaded.</p> <p style="text-align: right;">Maximum 1 mark</p>	1
3	<p>Explain what is meant by the term 'web service'.</p> <p>Marks for this question: AO1 = 2</p> <p>1 mark for each correct answer to a maximum of 2:</p> <ul style="list-style-type: none"> • a function/piece of software • accessed by other programs over the web • allows a client to remotely access/ modify data <p>Credit other suitable responses relevant to the question.</p> <p style="text-align: right;">Maximum 2 marks</p>	2
4	<p>Shade two lozenges to show what would need to be installed to create the Wi-Fi network.</p> <p>Marks for this question: AO1 = 2</p> <p>1 mark for each correct answer</p> <p>A (Wireless Access point); D (Wireless Network Interface Card);</p> <p>R. if more than two lozenges are shaded.</p> <p style="text-align: right;">Maximum 2 marks</p>	2

5	<p>State three possible advantages to the dental practice of converting to a Wi-Fi network.</p> <p>Marks for this question: AO2 = 3</p> <p>1 mark for each correct answer to a maximum of 3</p> <ul style="list-style-type: none"> • Free movement of devices within the building; • Expansion of network without installing further cabling; • Making Wi-Fi available to patients in the waiting room; • Staff can access information whilst moving about; • Personal mobile devices can be connected easily; • Can connect devices in areas that are not easy to cable; <p>Credit other suitable responses relevant to the question.</p> <p style="text-align: right;">Maximum 3 marks</p>	3
6	<p>Define the term 'hardware'.</p> <p>Marks for this question: AO1 = 1</p> <p>Hardware are the parts of the IT system that you can touch;</p> <p>A. Similar definitions as long as the concept of physical items is clear R. Just naming items of hardware</p> <p style="text-align: right;">Maximum 1 mark</p>	1
7	<p>Shade two lozenges to show which of the following categories of user are most likely to use the computer systems in the dental practice.</p> <p>Marks for this question: AO1 = 2</p> <p>B (End User); D (Technical User);</p> <p>R. if more than two lozenges are shaded.</p> <p style="text-align: right;">Maximum 2 marks</p>	2
8	<p>Shade one lozenge to show what format is the X-ray most likely to be stored as.</p> <p>Marks for this question: AO1 = 1</p> <p>A (Image);</p> <p>R. if more than one lozenge is shaded.</p> <p style="text-align: right;">Maximum 1 mark</p>	1

9	<p>Give two reasons why Wasim needs to ensure that the software is licenced and bought from a trustworthy, reputable seller.</p> <p>Marks for this question: AO1 = 2</p> <p>1 mark for each correct answer to a maximum of 2</p> <p>The dental practice could be taken to court for using unlicensed software; It is illegal to copy and pass on software that is not freeware or shareware or open source; If software is licenced, you can receive regular updates; Unlicensed software may be infected with viruses;</p> <p>A. any other correct answer that shows understanding of the concept of copyright law or the dangers associated with illegal software.</p> <p style="text-align: right;">Maximum 2 marks</p>	2
10	<p>Explain what 'open source software' is.</p> <p>Marks for this question: AO1 = 2</p> <p>1 mark for each correct answer to a maximum of 2</p> <p>Any statement that shows understanding that the term "open source" refers to something that can be modified and shared because its source code is publicly accessible;</p> <p>Open source software is software whose source code is available for modification or enhancement;</p> <p>Anybody can contribute and make changes to the software (subject to the terms of the licence).</p> <p style="text-align: right;">Maximum 2 marks</p>	2

11	<p>Explain why it is important to register software after it is installed and the drawbacks of not registering it.</p> <p>Marks for this question: AO1 = 4</p> <p>1 mark for each possible reason for registering 1 mark for each expansion</p> <p>Max 3 marks if no relevant drawbacks are included</p> <p>Possible reasons to register are:</p> <ul style="list-style-type: none"> • access to technical support • regular software updates • access to user documentation <p>Possible expansion points:</p> <ul style="list-style-type: none"> • allows you to ask an expert questions if things go wrong • allows you to use latest version, which may be enhanced, have new functions, have bugs sorted out • keeps your software up to date, which often fixes security problems that have been found • you can download full documentation, which allows you to use the product in the most efficient way <p>Also allow the negative point of view, eg:</p> <ul style="list-style-type: none"> • if you don't register then the software will not be updated and this may mean you are more vulnerable to attacks because security problems still exist in your version. <p style="text-align: right;">Maximum 4 marks</p>	4
12	<p>Using examples, describe two ways that the practice's software could be configured and say why these changes might be useful to the practice.</p> <p>Marks for this question: AO2 = 2, AO3 = 2</p> <p>1 mark for each correct configuration and a further mark for a valid reason for that configuration, to a maximum of 4</p> <p>Examples might include:</p> <p>Dental practice logo on the desktop; because it gives a corporate (or professional) look;</p> <p>Adding shortcuts on the desktop; to give quick access to often used documents (or software);</p> <p>Changing the default save directory; because it saves time when saving documents (or makes sure all documents are saved in the correct folder).</p> <p style="text-align: right;">Maximum 4 marks</p>	4

13	<p>Explain what is meant by web analytics.</p> <p>Marks for this question: AO1 = 2</p> <p>1 mark for each correct statement, to a maximum of 2.</p> <ul style="list-style-type: none"> the process of analysing the behaviour of visitors to a website; the measurement, collection, analysis and reporting of web data; for the purpose of understanding and optimising web usage; <p style="text-align: right;">Maximum 2 marks</p>	2
14	<p>Explain what is meant by a cookie. Your answer should include an explanation of what cookies do and what they can be used for.</p> <p>Marks for this question: AO1 = 3</p> <p>1 mark for the following point.</p> <ul style="list-style-type: none"> a cookie is a small amount of data created by a website; <p>1 mark for each point made to a maximum of 2.</p> <ul style="list-style-type: none"> they are used to remember something about you/your browsing history; that the website can use at a later time; it is information for future use; that is stored by the server on the client side of a client/server communication; cookies can be used to maintain state in a browser session; <p>Credit other suitable responses relevant to the question.</p> <p style="text-align: right;">Maximum 3 marks</p>	3
15	<p>Shade one lozenge which best describes how the patient data may be kept secure.</p> <p>Marks for this question: AO1</p> <p>B (Encrypted)</p> <p>R. if more than one lozenge is shaded.</p> <p style="text-align: right;">Maximum 1 mark</p>	1
16	<p>Explain three methods that Wasim could use to make sure that the Wi-Fi network is secure and protected from unauthorised access.</p> <p>Marks for this question: AO2 = 3 marks</p> <p>1 mark for each relevant explanation. The response must be more than a simple statement to gain the mark.</p> <ul style="list-style-type: none"> MAC filtering WPA passwords for encryption Setting username and password for the router Updating router software to potentially enhance security features <p>Credit other suitable responses relevant to the question.</p> <p style="text-align: right;">Maximum 3 marks</p>	3

17	<p>State one advantage of using cascading style sheets (CSS) alongside hypertext mark-up language (HTML).</p> <p>Marks for this question: AO1 = 1</p> <p>1 mark for any acceptable answer</p> <p>eg:</p> <ul style="list-style-type: none"> • the webpage content is kept separate from the presentation information • by making one change to a website's CSS style sheet, you can automatically make it to every page of the website • reduced file transfer sizes • search engines can index webpages more easily • CSS can make the same webpage display correctly on different web browsers • CSS can make the same webpage display correctly on different types of media e.g. mobile and desktop set it up. <p style="text-align: right;">Maximum 1 mark</p>	1
18	<p>Shade one lozenge which best describes the purpose of anti-virus software?</p> <p>Marks for this question: AO1 = 1</p> <p>C (software that detects computer viruses and destroys them);</p> <p>R. if more than one lozenge is shaded.</p> <p style="text-align: right;">Maximum 1 mark</p>	1
19	<p>Name three stages of the IT system life cycle.</p> <p>Marks for this question: AO1 = 3</p> <p>1 mark for each correctly named stage from the list below:</p> <ul style="list-style-type: none"> • Analysis • Design • Implementation • Testing • Evaluation <p style="text-align: right;">Maximum 3 marks</p>	3

20	<p>Use examples to explain how three of the stages of the IT system life cycle could be used to assist the dental practice when making changes.</p> <p>Marks for this question: AO2 = 6</p> <table border="1" data-bbox="285 336 1262 1016"> <thead> <tr> <th>Level</th><th>Response</th><th>Mark range</th></tr> </thead> <tbody> <tr> <td>3</td><td>A logically coherent explanation that covers all 3 named stages of the life cycle and contains three or more examples of how the use of the systems life cycle may help the dental practice. The examples are clearly linked to the stages of the systems life cycle and there is a clear path through the cycle from Analysis to Evaluation.</td><td>5–6</td></tr> <tr> <td>2</td><td>A description includes consideration (one or two stages) of how the systems life cycle may be used and a consideration (one or two examples) of the benefits to the dental practice. The examples are clearly linked to the stages and are set in the context of the dental practice rather than being a general discussion of the systems life cycle and how it can be used.</td><td>3–4</td></tr> <tr> <td>1</td><td>A statement that includes one or two stages of the systems life cycle has been included. The statement may be generalised rather than given in the context of the dental practice.</td><td>1–2</td></tr> <tr> <td colspan="2">No creditworthy response</td><td>0</td></tr> </tbody> </table> <p>Guidance – indicative content</p> <p>systems life cycle stages:</p> <ul style="list-style-type: none"> • analysis; • design; • implementation; • testing; • evaluation. <p style="text-align: right;">Maximum 6 marks</p>	Level	Response	Mark range	3	A logically coherent explanation that covers all 3 named stages of the life cycle and contains three or more examples of how the use of the systems life cycle may help the dental practice. The examples are clearly linked to the stages of the systems life cycle and there is a clear path through the cycle from Analysis to Evaluation.	5–6	2	A description includes consideration (one or two stages) of how the systems life cycle may be used and a consideration (one or two examples) of the benefits to the dental practice. The examples are clearly linked to the stages and are set in the context of the dental practice rather than being a general discussion of the systems life cycle and how it can be used.	3–4	1	A statement that includes one or two stages of the systems life cycle has been included. The statement may be generalised rather than given in the context of the dental practice.	1–2	No creditworthy response		0	6
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No creditworthy response		0															

21	<p>Describe one way, other than the example above, that the dental practice might use the 'Internet of Things' to help them.</p> <p>Marks for this question: AO1 = 1 mark AO2 = 1 mark</p> <p>1 mark for any acceptable potential use, such as (but not exclusively):</p> <ul style="list-style-type: none"> • control of environmental systems such as lights; • remote access to security; • checking whether there is sufficient stock of antibiotics in the fridge for the next day. <p>1 mark for relevant expansion, such as:</p> <ul style="list-style-type: none"> • so that heating can be turned on if the weather is unexpectedly cold; • so that someone can be informed if a window is left open; • so that more stock can be automatically ordered at the end of each day. <p style="text-align: right;">Maximum 2 marks</p>	2															
22	<p>Discuss, using examples from IT systems you have studied, created and used during the course, what is meant by HCI design.</p> <p>Your discussion should include an explanation of:</p> <ul style="list-style-type: none"> • what HCI design is used for • what factors should be taken into account in an HCI design • why HCI design is important. <p>Marks for this question: AO3 = 9</p> <table border="1" data-bbox="252 1099 1230 1933"> <thead> <tr> <th>Level</th><th>Response</th><th>Mark range</th></tr> </thead> <tbody> <tr> <td>3</td><td>A discussion clearly explaining the purpose of HCI design and containing three or more design factors and explanations of why these design factors are important. The design factors discussed are clearly linked to HCI principles and use relevant examples. The discussion is logically coherent and follows a clear path.</td><td>7–9</td></tr> <tr> <td>2</td><td>A description which explains the purpose of HCI design and includes consideration (one or two examples) of design factors and consideration (one or two examples) of the importance of these factors. The description uses examples. The description is logical and flows well.</td><td>4–6</td></tr> <tr> <td>1</td><td>A statement of the purpose of HCI design and/or a statement of one or two design factors has been included. Alternatively, a statement of the purpose of HCI design and/or a statement of one or two reasons for why HCI design is important has been included. The statements may be a simple bulleted list rather than coherent prose and examples may be missing.</td><td>1–3</td></tr> <tr> <td colspan="2">No creditworthy response</td><td>0</td></tr> </tbody> </table> <p>Guidance – indicative content</p> <p>eg HCI design factors:</p>	Level	Response	Mark range	3	A discussion clearly explaining the purpose of HCI design and containing three or more design factors and explanations of why these design factors are important. The design factors discussed are clearly linked to HCI principles and use relevant examples. The discussion is logically coherent and follows a clear path.	7–9	2	A description which explains the purpose of HCI design and includes consideration (one or two examples) of design factors and consideration (one or two examples) of the importance of these factors. The description uses examples. The description is logical and flows well.	4–6	1	A statement of the purpose of HCI design and/or a statement of one or two design factors has been included. Alternatively, a statement of the purpose of HCI design and/or a statement of one or two reasons for why HCI design is important has been included. The statements may be a simple bulleted list rather than coherent prose and examples may be missing.	1–3	No creditworthy response		0	9
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No creditworthy response		0															

	<ul style="list-style-type: none"> tolerance (the design should be flexible and tolerant, reducing the cost of mistakes and misuse by allowing undoing and redoing, while also preventing errors wherever possible) simplicity (the design should make simple, common tasks easy, communicating clearly and simply in the user's own language) visibility (the design should make all needed options and materials for a given task visible without distracting the user) consistency (the design should reuse components) structure (the design should organize the user interface purposefully, in meaningful and useful ways) feedback (the design should keep users informed of actions or interpretations, changes of state or condition). <p>eg importance of HCI such as:</p> <ul style="list-style-type: none"> make displays legible (or audible) create usable interfaces create interfaces usable by people with different needs allowing tasks to be performed quickly and easily make the computer intuitive to use. <p>Credit other suitable responses relevant to the question.</p> <p style="text-align: right;">Maximum 9 marks</p>							
23.1	<p>State what authorisation is and, using relevant examples from the IT systems you have created, describe two common authorisation methods.</p> <p>Marks for this question: AO1 = 3</p> <p>1 mark for the following point.</p> <ul style="list-style-type: none"> authorisation is the process of specifying access rights to resources <p>1 mark for each of the following points made to a maximum of 2. The points made must be in the context of 'IT systems you have created during this course'.</p> <ul style="list-style-type: none"> file permissions user groups share permissions access control lists <p>Credit other suitable responses relevant to the question.</p> <p style="text-align: right;">Maximum 3 marks</p>	3						
23.2	<p>Name three types of threat.</p> <p>For each threat you have named:</p> <ul style="list-style-type: none"> discuss its possible effects on the dental practice and explain, using examples from the IT systems you have created, how Wasim can make sure that the IT systems in the dental practice are kept safe from the threat. <p>Marks for this question: AO1 = 3, AO2 = 6</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Level</th><th style="width: 55%;">Response</th><th style="width: 30%;">Mark range</th></tr> </thead> <tbody> <tr> <td style="text-align: center;">3</td><td>A discussion with three or more threats with examples (The examples used must be in the context of 'IT systems you have created during this course'.) of how these threats might affect the</td><td style="text-align: center;">7–9</td></tr> </tbody> </table>	Level	Response	Mark range	3	A discussion with three or more threats with examples (The examples used must be in the context of 'IT systems you have created during this course'.) of how these threats might affect the	7–9	9
Level	Response	Mark range						
3	A discussion with three or more threats with examples (The examples used must be in the context of 'IT systems you have created during this course'.) of how these threats might affect the	7–9						

		dental practice and two or more examples (The examples used must be in the context of 'IT systems you have created during this course'.) of preventative measures. The threats discussed clearly show how the dental practice may be affected. The preventative measures discussed are clearly linked to the threats. The discussion is logically coherent and follows a clear path from threat, to effect on the dental practice, to prevention.	
	2	A description which includes consideration (one or two examples) of how the threats described might affect the dental practice and consideration (one or two examples) of preventative measures that can be taken. (At least one of the examples used must be in the context of 'IT systems you have created during this course'.). At least one of the examples of threats and preventative measures is clearly linked to the dental practice rather than being a general discussion of threats and preventative measures.	4–6
	1	A statement of one or two threats that may come from the Internet has been included. The statement may be generalised rather than given in the context of the dental practice. Alternatively, a statement of one or two preventative measures has been included. The statement may be generalised rather than given in the context of the dental practice.	1–3
	No creditworthy response		0

Guidance – indicative content

Threats such as:

- viruses – Trojans, worms
- hackers
- malware
- phishing or other email scams
- ransomware
- botnets

Effect on the practice:

- Loss of medical data
- Patient personal details stolen
- Data corruption
- Loss of reputation
- Legal costs
- Repair/recovery costs
- Loss of business

Preventative measures such as:

- Anti-virus software
- applying security updates to operating systems and other software
- education and training of employees
- securing access to the network.

Credit other suitable responses relevant to the question.

	Maximum 9 marks																
23.3	<p>Describe two advantages and two disadvantages to the dental practice of introducing two-factor authentication and strong passwords.</p> <p>Marks for this question: AO2 = 6</p> <table border="1"> <thead> <tr> <th>Level</th><th>Response</th><th>Mark Range</th></tr> </thead> <tbody> <tr> <td>3</td><td>At least two valid advantages and disadvantages (minimum two of each) to the dental practice of the use of two-factor authentication and strong passwords are described. The reasons given are clearly relevant to the dental practice.</td><td>5–6</td></tr> <tr> <td>2</td><td>two or three valid advantages and disadvantages in total to the dental practice of the use of two-factor authentication and strong passwords are described or three or more valid advantages or disadvantages are stated.</td><td>3–4</td></tr> <tr> <td>1</td><td>A statement of one or two valid advantages or disadvantages has been included.</td><td>1–2</td></tr> <tr> <td></td><td>No creditworthy response</td><td>0</td></tr> </tbody> </table> <p>Guidance – indicative content:</p> <p>Advantages:</p> <ul style="list-style-type: none"> the security of the patient's data is increased the person using the computer must possess more than one form of identity (Physical object, a secret known only to them, a physical characteristic) unauthorised access to the dental practice computers is reduced <p>Disadvantages:</p> <ul style="list-style-type: none"> staff need to remember two pieces of identification additional cost to the dental practice if they use dongles or smartcards staff might forget their passwords more frequently. <p>Credit other suitable responses relevant to the question.</p> <p>Maximum 6 marks</p>	Level	Response	Mark Range	3	At least two valid advantages and disadvantages (minimum two of each) to the dental practice of the use of two-factor authentication and strong passwords are described . The reasons given are clearly relevant to the dental practice.	5–6	2	two or three valid advantages and disadvantages in total to the dental practice of the use of two-factor authentication and strong passwords are described or three or more valid advantages or disadvantages are stated .	3–4	1	A statement of one or two valid advantages or disadvantages has been included.	1–2		No creditworthy response	0	6
Level	Response	Mark Range															
3	At least two valid advantages and disadvantages (minimum two of each) to the dental practice of the use of two-factor authentication and strong passwords are described . The reasons given are clearly relevant to the dental practice.	5–6															
2	two or three valid advantages and disadvantages in total to the dental practice of the use of two-factor authentication and strong passwords are described or three or more valid advantages or disadvantages are stated .	3–4															
1	A statement of one or two valid advantages or disadvantages has been included.	1–2															
	No creditworthy response	0															
24.4	<p>Discuss, using examples from IT systems you have created, two methods that could be used to control access to the appointments database.</p> <p>Marks for this question: AO1 = 2 marks AO2 = 2 marks AO3 = 2 mark</p> <table border="1"> <thead> <tr> <th>Level</th><th>Response</th><th>Mark Range</th></tr> </thead> <tbody> <tr> <td>3</td><td>A logically coherent discussion of two methods that may be used to control access to the database is given. The examples used are clearly valid in the context of database security and must be in the context of 'IT systems you have created during this course'.</td><td>5–6</td></tr> <tr> <td>2</td><td>A logical description of two methods that may be used to control access to the database is given. Most of the examples used will clearly be</td><td>3–4</td></tr> </tbody> </table>	Level	Response	Mark Range	3	A logically coherent discussion of two methods that may be used to control access to the database is given. The examples used are clearly valid in the context of database security and must be in the context of 'IT systems you have created during this course'.	5–6	2	A logical description of two methods that may be used to control access to the database is given. Most of the examples used will clearly be	3–4	6						
Level	Response	Mark Range															
3	A logically coherent discussion of two methods that may be used to control access to the database is given. The examples used are clearly valid in the context of database security and must be in the context of 'IT systems you have created during this course'.	5–6															
2	A logical description of two methods that may be used to control access to the database is given. Most of the examples used will clearly be	3–4															

		valid in the context of database security and at least one example must be in the context of 'IT systems you have created during this course'.		
		or A logical discussion of one method that may be used to control access to the database is given. Most of the examples used will clearly be valid in the context of database security and at least one example must be in the context of 'IT systems you have created during this course'.		
	1	A statement of one or two valid methods that could be used to secure the database or prevent access to the database has been included.	1–2	
		No creditworthy response	0	
	<p>Guidance – indicative content:</p> <p>Security methods:</p> <ul style="list-style-type: none"> • Password protection • Retinal scan • Fingerprint recognition • Swipe card • Levels of access • Encryption • Use of https protocol • Keep database behind firewall <p>Credit other suitable responses relevant to the question.</p> <p>Maximum 6 marks</p>			