

[C054/SQP092]

Intermediate 2 Time: 1 hour 30 minutes
Information Systems
Specimen Question Paper

NATIONAL
QUALIFICATIONS

Section I

Attempt all questions. Write your answers in the answer book provided. Do not write on the question paper.

Section II, III and IV

Choose **one** of these sections. Answer **all** of the questions in **one** of these sections. Read all questions carefully. Write as neatly as possible.

SECTION I

Attempt all questions in this section. Each question is worth two marks.

1. Describe the method you would use to put a list of names in a database into alphabetical order and then generate a report.
2. A company wants to link computers so that users can send and receive information electronically.
 - (a) State what type of software would be required by the company.
 - (b) Name a specific type of application package that might be used.
3. State the names of **two** pieces of documentation normally supplied with computer programs which provide information on the features available in the application package.
4. State **two** differences between a *flat file* database and a *relational* database.
5. A student requires a word processing package. Commercial software is too expensive. Name **two** other less expensive types of software the student might use.
6. State the meaning of the term *validation* as applied to data and give an example of when validation could be used.
7. State **two** activities that the Computer Misuse Act (1990) was designed to prevent.
8. State a source of application software which would tailor an application package to do the exact job you require. Whose job is it to write this software?
9. A credit reference agency stores information about people who have been taken to court for not paying bills and sells this information to shops offering hire purchase agreements to customers. The agency informs a shop that a certain customer has a bad credit history which the customer denies. State what rights the customer has with regard to the information held by the credit reference agency.
10. The World Wide Web can be described as a very large database which stores a range of information. This information can be downloaded by anyone anywhere in the world. State **four** different types of information that can be downloaded.
11. If you receive software without paper documentation, describe **two** facilities that would help you use the program.
12. A garage uses a stock control database to keep track of spare parts. This replaces a manual system based on paper forms. State **two** reasons why the garage manager might prefer the database system.
13. A database contains data about people including their name, age and address. What would be the result if the query *Age>30 AND Name="Smith"* was typed into the database?
14. State what the purpose of a *browser* is in terms of the Internet and give **one** example of a navigation facility usually found in a browser.
15. What is *anti-virus software* and why might you use it when trying out a disk given to you by a friend?

[END OF SECTION I]

Complete ONE of the next THREE sections

Marks

SECTION II—Applications of IT in Society

Attempt all questions in this section. All questions carry equal marks.

1. There have been many developments in information technology over the past few years.

Choose **one** of the following areas

- Technology **or**
- Information services.

- (a) From the area you have chosen, state a new development with which you are familiar. 1
- (b) Describe the historical background to your chosen development and outline **two** reasons for its introduction. 4
- (c) Describe a use of your development. 2
- (d) Describe the social **or** legal **or** ethical implications of your development. 3
- (10)**

2. In the future you may not need to leave your home for many of your leisure activities. Using your personal computer, you will be able to talk to your friends in chat rooms, play multi-user computer games, access educational sites to do your homework, buy new clothes using on-line shopping and watch films.

- (a) (i) Which one of the generic applications will be essential for the above activities?
Explain your answer. 2
- (ii) Choose an example from above where a specialised application is required.
Explain your answer. 2
- (b) One of the concerns about this is that it will lead to “information rich” individuals and “information poor” individuals.
Explain the terms *information rich* and *information poor*. 2
- (c) State a medium which allows you to watch films on your personal computer. 1
- (d) (i) State **two** reasons why multi-user computer games are becoming more widely used. 2
- (ii) Suggest a new development that could improve the realism of multi-user games. 1
- (10)**

3. A couple use their personal computer to design the interior of the living room of their new house. This includes the lighting and the purchase of furniture.

The couple follow these steps.

Step 1 — Take notes on the shape and measurements of the room, the position and size of the doors and windows, the style of furniture and lighting and any colours they have in mind.

Step 2 — Produce an exact scale drawing.

Step 3 — Look through a selection of furniture and lighting and note down the suitable items.

Step 4 — Draw sketches of the room with alternative colour schemes, lighting positions and furniture.

Step 5 — Produce costings of each design.

Step 6 — Choose a design.

Step 7 — Order the furniture, lights and decorating materials.

Step 8 — Schedule the work to be carried out.

The couple have access to the Internet and the following software packages on their computer.

- Accounting
- Communications
- Database
- Graphics
- Spreadsheet
- Word processing

- | | |
|--|-------------|
| (a) Describe how each of these packages can contribute to the steps listed above. | 6 |
| (b) Describe two advantages to the couple of using information technology to design the room. | 2 |
| (c) The couple considers purchasing a 3D graphics package. Explain how this software could help them to design the room. | 2 |
| | (10) |
| | (30) |

[END OF SECTION II]

SECTION III—Multimedia

Attempt all questions in this section. All questions carry equal marks.

Marks

4. (a) What is meant by the term *multimedia*? 1
- (b) Multimedia computers use a variety of file types when storing data.
State what type of data is stored as:
(i) a *MIDI* file; 1
(ii) a *MPEG* file. 1
- (c) What developments in hardware have led to multimedia being widely available on desktop computers? 2
- (d) A monitor has a 768×1024 display resolution. What is meant by *display resolution*? 2
- (e) One of the main uses of a multimedia computer system is desk-top publishing (DTP). Describe **three** unique features of DTP software. 3
(10)
5. A company creates a multimedia presentation for the launch of a new product. The company has videotape of the product being manufactured, photographs of the finished product, sound recordings of people being interviewed about the design of the product and specially composed music recorded on tape, all of which are to be included in the presentation.
- (a) State **four** hardware items that are required to prepare and show the presentation. Explain why each item is necessary. 4
- (b) State **four** software packages required to prepare and show the presentation. Explain why each package is necessary. 4
- (c) The company wants to distribute copies of the presentation on CD-ROM. State **one** advantage and **one** limitation of CD-ROM for this purpose. 2
(10)
6. A presentation package has to cope with a variety of file types.
- (a) State **one** advantage of using each of the following.
(i) Bitmap graphics 1
(ii) Vector graphics 1
(iii) JPEG files 1
- (b) The audio files used by the presentation package have a *16-bit resolution* and a *frequency of 32kHz*.
(i) What is meant by a *16-bit resolution*?
If the resolution was changed to 8-bit how would that affect the sound? 2
(ii) Explain the term *frequency of 32kHz*. 2
- (c) (i) State **two** factors that affect the size of video files used by the package. 1
(ii) Describe these factors. 2
(10)
- (30)

[END OF SECTION III]

SECTION IV—The Internet

Attempt all questions in this section. All questions carry equal marks.

	Marks
7. (a) State five services that the Internet provides.	2
(b) What is a communication <i>protocol</i> ?	1
(c) State the purpose of the following protocols. (i) TCP/IP (ii) SMTP (iii) HTTP	3
(d) A number of organisations have responsibility for aspects of the Internet. Explain the role of the following organisations. (i) Internet Society (ii) World Wide Web Consortium	4
	(10)
8. A business has recently connected its internal local area network to the Internet. The internal network was previously used for sharing devices.	
(a) State four types of communication software that the company may have to acquire in order to use the Internet. Explain the purpose of each type of program.	4
(b) With reference to one of your chosen communication programs, describe the characteristics of high quality software.	4
(c) The company may be able to download software from the Internet itself. Outline two advantages of this source of software compared to alternative sources.	2
	(10)
9. Ashid has connected his home computer system to the Internet through the analogue telephone system. He complains that it takes a long time to download Web pages and transfer files.	
(a) (i) Give three possible reasons why the connection speed is slow.	3
(ii) For each of these reasons, explain how the Internet connection could be improved.	3
(b) What contemporary developments are likely to worsen the speed of Internet access?	4
	(10)
	(30)

[END OF SECTION IV]

[END OF QUESTION PAPER]

[C054/SQP092]

Intermediate 2
Information Systems
Specimen Marking Instructions

NATIONAL
QUALIFICATIONS

KU — Knowledge and understanding
PS — Problem solving

Commentary on paper

Structure of paper

The paper is divided into four sections as follows:

- | | |
|-------------|---|
| Section I | Fifteen short answer questions covering the two core units (Database Systems and Computer Applications Software). |
| Section II | Three extended response questions relating to the Applications of IT in Society optional unit. |
| Section III | Three extended response questions relating to the Multimedia optional unit. |
| Section IV | Three extended response questions relating to The Internet optional unit. |

Candidates must answer all of the questions from Section I and all of the questions in one of the optional sections (II-IV).

Distribution of marks

The paper is worth **60 marks** distributed as follows:

- | | |
|-------------|----------|
| Section I | 30 marks |
| Section II | 30 marks |
| Section III | 30 marks |
| Section IV | 30 marks |

Candidates must attempt one of the optional sections.

Section I consists of 15 short answer questions. Each question is worth two marks. All of the questions are drawn from the core units (Computer Application Software and Database Systems).

Sections II-IV consist of three extended response questions each worth 10 marks. Each section relates to one of the optional units and includes aspects of the core units. The inclusion of aspects of core units permits these questions to integrate knowledge and understanding, and provides an appropriate balance of marks between core and optional units (40:20).

SECTION I

Type	No	Question	
KU	1	Describe the method you would use to put a list of names in a database into alphabetical order and then generate a report.	
		Solution	Marking scheme
		<ul style="list-style-type: none"> • sort on name field • print report 	1 mark for each bullet. (half mark if field not specified)
Type	No	Question	
KU	2	<p>A company wants to link computers so that users can send and receive information electronically.</p> <p>(a) State what type of software the company would require.</p> <p>(b) Name a specific type of application package that might be used.</p>	
		Solution	Marking scheme
		<ul style="list-style-type: none"> • communications software • email or FTP or similar comms package 	1 mark for each bullet
Type	No	Question	
KU	3	State the names of two pieces of documentation normally supplied with computer programs which provide information on the features available in the application package.	
		Solution	Marking scheme
		<ul style="list-style-type: none"> • user guide • reference guide • installation guide 	1 mark for each bullet. up to a maximum of 2 marks

Type	No	Question	
KU	4	State two differences between a flat file database and a relational database.	
		Solution	Marking scheme
		<ul style="list-style-type: none"> • flat file single level • relational has multilevel (hierarchical) • views • tables • links 	1 mark for each bullet. up to a maximum of 2 marks
Type	No	Question	
KU	5	A student requires a word processing package. Commercial software is too expensive. Name two other less expensive types of software the student might use.	
		Solution	Marking scheme
		<ul style="list-style-type: none"> • freeware • shareware 	1 mark for each bullet.
Type	No	Question	
KU	6	State the meaning of the term validation as applied to data and give an example of when validation could be used.	
		Solution	Marking scheme
		<ul style="list-style-type: none"> • test to see if data is reasonable • Example: date does not have too many days in month e.g. Feb 31 	1 mark for each bullet
Type	No	Question	
KU	7	State two activities that the Computer Misuse Act (1990) was designed to prevent.	
		Solution	Marking scheme
		<ul style="list-style-type: none"> • hacking • unauthorised deletion of data • abuse of computer systems • improper use of computers e.g. propagating viruses, pornography 	1 mark for each bullet. up to a maximum of 2 marks

Type	No	Question	
KU	8	State a source of application software which would tailor an application package to do the exact job you require. Whose job is it to write this software?	
		Solution	Marking scheme
		<ul style="list-style-type: none"> • software bureau • programmers or software developers 	1 mark for each bullet
Type	No	Question	
PS	9	A credit reference agency stores information about people who have been taken to court for not paying bills and sells this information to shops offering hire purchase agreements to customers. The agency informs a shop that a certain customer has a bad credit history which the customer denies. State what rights the customer has with regard to the information held by the credit reference agency.	
		Solution	Marking scheme
		<ul style="list-style-type: none"> • to see information stored • correct information if wrong 	1 mark for each bullet.
Type	No	Question	
KU	10	The World Wide Web can be described as a very large database which stores a range of information. This information can be downloaded by anyone anywhere in the world. State four different types of information that can be downloaded.	
		Solution	Marking scheme
		<ul style="list-style-type: none"> • text • graphic (information), including video and animation • sound including music and midi • software 	half mark for each bullet
Type	No	Question	
KU	11	If you receive software without paper documentation, describe two facilities that would help you use the program.	
		Solution	Marking scheme
		<ul style="list-style-type: none"> • on-line help • electronic documentation 	1 mark for each bullet

Type	No	Question	
PS	12	A garage uses a stock control database to keep track of spare parts. This replaces a manual system based on paper forms. State two reasons why the garage manager might prefer the database system.	
		Solution	Marking scheme
		<ul style="list-style-type: none"> • less paperwork • quicker access to data • easier to do stock taking • easier to do re-ordering 	1 mark for each bullet. up to a maximum of 2 marks
Type	No	Question	
PS	13	A database contains data about people including their name, age and address. What would be the result if the query Age >30 AND Name = Smith was typed into the database?	
		Solution	Marking scheme
		<ul style="list-style-type: none"> • All people named Smith over the age of 30 	2 marks for bullet
Type	No	Question	
KU	14	State what the purpose of a browser is in terms of the Internet and give one example of a navigation facility usually found in a browser.	
		Solution	Marking scheme
		<ul style="list-style-type: none"> • to display web pages • One from; forward button, back button, go menu, bookmarks 	1 mark for each bullet
Type	No	Question	
KU	15	What is anti-virus software and why might you use it when trying out a disk given to you by a friend?	
		Solution	Marking scheme
		<ul style="list-style-type: none"> • program that detects and removes viruses • to prevent virus spreading from infected disk to your system 	1 mark for each bullet

SECTION II - IV

No	Commentary	
1	This question tests knowledge and understanding of the Applications of IT in society. It tests the candidate s knowledge of a new development that they have studied.	
Type	Question	Marking scheme
KU	<p>There have been many developments in information technology over the past few years.</p> <p>Choose one of the following areas:</p> <ul style="list-style-type: none"> • technology or • information services. <p>a) From the area you have chosen, state a new development with which you are familiar.</p>	<p>e.g. technology — network computers, hand held PCs</p> <p>e.g. Information services — on-line shopping, on-line game playing</p> <p>1 mark for any reasonable development. No description necessary</p>
KU	<p>b) Describe the historical background to your chosen development and outline two reasons for its introduction.</p>	<p>Historical background e.g. network computers Mainframe to minicomputers to microcomputers to network computer developments.</p> <p>Reasons — discuss the limitations of contemporary systems such as cost and complexity</p> <p>2 mark for history, 1 mark for each of two reasons</p>
PS	<p>c) Describe a use of your development.</p>	<p>Application of the development in either a business context, an industrial context or social context.</p> <p>2 marks for suitable application</p>
KU	<p>d) Describe the social or legal or ethical implications of your development.</p>	<p>Description of suitable implications relating to one of the following areas:</p> <p>Social — e.g. on-line game playing causing increasingly unhealthy children, social isolation</p> <p>Legal — within legal limits</p> <p>Ethical — e.g. on-line shopping causing some effect on the work place</p> <p>3 marks</p>

No	Commentary	
2	This question tests knowledge and understanding of the Applications of IT in Society. The question tests the candidate s problem solving abilities using applications in an unfamiliar context.	
Type	Question	Marking scheme
PS	<p>In the future you may not need to leave your home for many of your leisure activities. Using your personal computer, you will be able to talk to your friends in chat rooms, play multi-user computer games, access educational sites to do your homework, buy new clothes using on-line shopping and watch films.</p> <p>(a) (i) Which one of the generic applications will be essential for the above activities? Explain your answer.</p> <p>(ii) Choose an example from above where a specialised application is required. Explain your answer.</p>	<p>(a)</p> <p>(i) Communications software will be essential because all the examples in scenario (except DVD) need communication software to operate.</p> <p>Any other example of generic application is acceptable as long as properly justified.</p> <p>1 mark for application and 1 mark for explanation</p> <p>(ii) Entertainment software is example of multi-user computer games. Financial software to pay for goods bought using on-line shopping. Information Services providing information for homework.</p> <p>Any other example of specialised application is acceptable as long as properly justified</p> <p>1 mark for application and 1 mark for explanation</p>
KU	<p>(b) One of the concerns about this is that it will lead to information rich individuals and information poor individuals. Explain the terms information rich and information poor.</p>	<p>(b) Some individuals will be information rich because they have IT skills and information tools to access information at any time. Whereas others without these skills and tools will not have the same access leading to information poor individuals.</p> <p>1 mark for each correct explanation</p>
PS	<p>(c) State a medium which allows you to watch films on your personal computer</p>	<p>(c) CD or DVD or Internet or any other appropriate medium.</p> <p>1 mark for correct answer</p>

PS	<p>(d) (i) State two reasons why multi-user computer games are becoming widely used.</p> <p>(ii) Suggest a new development that could improve the realism of multi-user games.</p>	<p>(d) (i)</p> <ul style="list-style-type: none"> • Millions of potential players • Easily accessible • Improved communications e.g. Internet • People to play at any time of day <p>1 mark for each of two appropriate reasons</p> <p>(ii) Virtual reality, faster processors, faster modems, ISDN lines, improved graphics</p> <p>1 mark for an appropriate development</p>
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No	Commentary	
3	This question tests knowledge and understanding of the Applications of IT in society. The question is set in an unfamiliar context.	
Type	Question	Marking scheme
PS	<p>A couple use their personal computer to design the interior of the living room of their new house. This includes the lighting and the purchase of furniture. The couple follow these steps.</p> <p>Step 1 — Take notes on the shape and measurements of the room, the position and size of the doors and windows, the style of furniture and lighting and any colours they have in mind.</p> <p>Step 2 — Produce an exact scale drawing.</p> <p>Step 3 — Look through a selection of furniture and lighting and note down the suitable items.</p> <p>Step 4 — Draw sketches of the room with alternative colour schemes, lighting positions and furniture.</p> <p>Step 5 — Produce costings of each design.</p> <p>Step 6 — Choose a design.</p> <p>Step 7 — Order the furniture, lights and decorating materials.</p> <p>Step 8 — Schedule the work to be carried out.</p> <p>The couple have access to the Internet and the following software packages on their computer.</p> <ul style="list-style-type: none"> • Accounting • Communications • Database • Graphics • Spreadsheet • Word processing <p>(a) Describe how each of these packages can contribute to each of the steps listed above.</p>	<ul style="list-style-type: none"> • Accounting — this will be used at step 5. • Communications — this could be used at step 3 when looking for suitable furniture etc and at step 7 to order the required items. • Database — used at step 3 to look through and find appropriate items. • Graphics — used at steps 2 and 4 to produce the sketches. • Spreadsheet — to draw up the schedule of work to be carried out at step 8. • Word processing — at step 7 for ordering the furniture etc. Possibly at step 1 when taking notes. <p>1 mark for appropriate use of each type of software</p>

KU	(b) Describe two advantages to the couple of using information technology to design the room.	<ul style="list-style-type: none"> • ease of producing different designs • speed of producing different designs • efficient record/account keeping any other reasonable answer 1 mark for each of two advantages (up to 2 marks)
PS	(c) The couple considers purchasing a 3D graphics package. Explain how this software could help them to design the room.	<ul style="list-style-type: none"> • more realistic picture • improved resolution • simulations done in real time 1 mark for each of two relevant points

No	Commentary	
4	This question tests the student s knowledge of basic multimedia terms and hardware requirements.	
Type	Question	Marking scheme
KU	(a) What is meant by the term multimedia	<p>The presentation of information by a computer system using</p> <ul style="list-style-type: none"> • graphics • animation • sound • text <p>1 mark for any 3 correct bullet points up to a maximum of 1 mark</p>
KU	<p>(b) Multimedia computers use a variety of file types when storing data. State what type of data is stored as:</p> <p>(i) a MIDI file;</p> <p>(ii) a MPEG file.</p>	<p>(i)</p> <ul style="list-style-type: none"> • sound/audio • music <p>1 mark for any correct bullet point up to a maximum of 1 mark</p> <p>(ii)</p> <ul style="list-style-type: none"> • video • movies • sound and pictures <p>(NB just graphics or pictures is insufficient)</p> <p>1 mark for any correct bullet point up to a maximum of 1 mark</p>
KU	(c) What developments in hardware have led to multimedia being widely available on desktop computers?	<ul style="list-style-type: none"> • The speed of the processors • Decreasing cost of memory • Improved graphics and audio cards • Greater backing storage capacity <p>1 mark for each correct bullet point up to a maximum of 2 marks</p>
KU	(d) A monitor has a 768 x 1024 display resolution. What is meant by display resolution ?	<p>The screen has 768 pixels across by 1024 pixels down.</p> <p>1 mark for saying the picture is made up of 768 x 1024 dots.</p> <p>1 mark for using the term pixel</p> <p>Maximum 2 marks</p>

KU	<p>(e) One of the main uses of a multimedia computer system is desk-top publishing (DTP). Describe three unique features of DTP software.</p>	<ul style="list-style-type: none"> • mix text and graphics (textwrap) • accurately position text and/or graphics • produce camera ready copy for publishing • produce separations for colour printing • produce complex layouts <p>1 mark for any correct bullet point up to a maximum of 3 marks</p>
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No	Commentary	
5	This question tests knowledge and understanding and problem solving. The question allows students to make use of the knowledge they will have acquired creating their own multimedia presentation. The question requires the student to realise the separate roles played by hardware and software in creating the presentation.	
Type	Question	Marking scheme
PS	<p>A company creates a multimedia presentation for the launch of a new product. The company has videotape of the product being manufactured, photographs of the finished product, sound recordings of people being interviewed about the design of the product and specially composed music recorded on tape, all of which are to be included in the presentation.</p> <p>(a) State four hardware items that are required to prepare and show the presentation. Explain why each item is necessary.</p>	<p>(a)</p> <ul style="list-style-type: none"> • Processor — processes data • Scanner — converts photograph into digital image • Video compression/display card — converts analogue video signal into digital image • Sound card — converts analogue sound signal into digital image • Backing storage — stores data files and final presentation. May be large capacity hard drive or optical drive • Or any other acceptable answer <p>1 mark for each correct hardware item with description from above list, half mark if only name of item given, up to a maximum of 4 marks</p> <ul style="list-style-type: none"> • Input devices — keyboard, mouse. Control presentation • Output device — monitor. Displays presentation. <p>Half mark for each input/output item with explanation up to a maximum of 1 mark but not to exceed 4 marks total for question.</p>
KU	<p>(b) State four software packages required to prepare and show the presentation. Explain why each package is necessary.</p>	<p>(b)</p> <ul style="list-style-type: none"> • Scanning software — displays scanned image and allows it to be edited and saved. • Graphics package — allows editing of bitmap and/or vector graphics. • Sound editing software — used to edit digital music or sound. • Video editing software — used to edit video data. • Presentation software. Accepts audio-visual data and allows it to be edited and sequenced. Allows text and graphics to be added to presentation. <p>1 mark for each bullet point from above list up to a maximum of 4 marks</p>

KU	<p>(c) The company wants to distribute copies of the presentation on CD-ROM. State one advantage and one limitation of CD-ROM for this purpose.</p>	<p>(c) Advantages</p> <ul style="list-style-type: none"> • cheap to produce • easily transported • widely used medium • high capacity suitable for storing large multimedia files <p>1 mark for any correct bullet point up to a maximum of 1 mark</p> <p>Limitations</p> <ul style="list-style-type: none"> • Slow data transfer speed may make video jerky • Slow data transfer speed may make full screen video impractical • Storage capacity may be too low for some presentations <p>1 mark for any correct bullet point up to a maximum of 1 mark</p>
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No	Commentary	
6	This question tests knowledge and understanding. The question allows students to make use of the knowledge they will have acquired of the factors affecting choice of data formats for multimedia	
Type	Question	Marking scheme
KU	<p>A presentation package has to cope with a variety of file types.</p> <p>(a) State one advantage of using each of the following.</p> <p>(i) Bitmap graphics (ii) Vector graphics (iii) JPEG files</p>	<p>(a) (i)</p> <ul style="list-style-type: none"> • edit individual pixels • wide range of transformations possible • allows use of photographs <p>1 mark for each bullet up to a maximum of 1 mark</p> <p>(ii)</p> <ul style="list-style-type: none"> • easily scaled • small file size • no loss of quality on scaling <p>1 mark for each bullet up to a maximum of 1 mark</p> <p>(iii)</p> <ul style="list-style-type: none"> • bitmap format easily edited • small file size • variable compression/quality <p>1 mark for each bullet up to a maximum of 1 mark</p>
KU	<p>(b) The audio files used by the presentation package have a 16-bit resolution and a frequency of 32kHz.</p> <p>(i) What is meant by 16-bit resolution? If it was changed to 8-bit, how would that affect the sound?</p> <p>(ii) Explain the term frequency of 32kHz.</p>	<p>(b)</p> <p>(i) data is stored using 16-bits — 1 mark</p> <p>with 8-bit resolution sound quality would be lower — 1 mark</p> <p>(ii) sound is sampled 32000 times per second</p> <p>1 mark for mention of sampling 1 mark for explaining frequency</p>

KU	<p>(c)</p> <p>(i) State two factors that affect the size of video files used by the package.</p> <p>(ii) Describe these factors</p>	<p>(c)</p> <p>(i) and (ii)</p> <ul style="list-style-type: none"> • frame size — dimensions of picture on screen • colour depth — number of bits used to store colour data • frame rate — number of frames displayed per second • video compression — amount of data removed by software algorithm to reduce data storage/transmission requirements <p>Half mark for any bulleted term up to a maximum of 1 mark 1 mark for description of term up to a maximum of 2 marks</p>
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No	Commentary	
7	This question relates to candidates' knowledge and understanding of Internet services and protocols and the historical development of the Internet.	
Type	Question	Marking scheme
KU	(a) State five services that the Internet provides.	<ul style="list-style-type: none"> • E-mail • World Wide Web • Newsgroups • Chat • File transfer <p>_ for each missing service of max. of 2</p>
KU	(b) What is a communication protocol?	Protocol: standard set of rules 1 mark
	(c) State the purpose of the following protocols. (i) TCP/IP (ii) SMTP (iii) HTTP	(i) data transmission protocol (ii) e-mail protocol (iii) hypertext protocol for the WWW 1 mark for each description up to 3
KU	(d) A number of organisations have responsibility for aspects of the Internet. Explain the role of the following organisations. (i) Internet Society (ii) World Wide Web Consortium	(i) Internet Society <ul style="list-style-type: none"> • umbrella organisation • setting infrastructure standards • promote the use of the Internet • encourage educational initiatives <p>_ mark for each bullet up to 2</p> (ii) W3C <ul style="list-style-type: none"> • provide information about the WWW • promote international standards • develop new products • demonstrate new applications <p>_ mark for each bullet up to 2</p>

No	Commentary	
8	This question relates to the factors that affect connection to the Internet. It assesses candidates' knowledge and understanding of communication software, quality issues and sources of software.	
Type	Question	Marking scheme
PS	<p>A business has recently connected its internal local-area network to the Internet. The internal network was previously used for sharing devices.</p> <p>(a) State four types of communication software that the company may have to acquire in order to use the Internet. Explain the purpose of each type of program.</p>	<ul style="list-style-type: none"> • Web browser • Internet e-mail software (SMTP compatible) • File transfer software (FTP compatible) • Newsreader • IRC chat client <p>– mark for stating program; – mark for explaining purpose Max 4 marks</p>
PS	<p>(b) With reference to one of your chosen communication programs, describe the characteristics of high quality software.</p>	<p>Candidates are required to discuss the following characteristics:</p> <ul style="list-style-type: none"> • User interface • Functionality • Speed • Robustness <p>1 mark for each characteristic up to max of 4 Reference must be made to above programs</p>
KU	<p>(c) The company may be able to download software from the Internet itself. Outline two advantages of this source of software compared to alternative sources.</p>	<ul style="list-style-type: none"> • Immediately available • Convenient • Easy/convenient to update • Good quality technical support • Larger choice of software <p>1 mark for each reason up to max of 2 – mark each for just stating advantages</p>

No	Commentary	
9	This question relates to the factors that affect an Internet connection and assesses the candidate's knowledge and understanding of these factors.	
Type	Question	Marking Scheme
KU	<p>Ashid has connected his home computer system to the Internet through the analogue telephone system. He complains that it takes a long time to download Web pages and transfer files.</p> <p>(a)</p> <p>(i) Give three possible reasons why the connection speed is slow.</p> <p>(ii) For each of these reasons, explain how the Internet connection could be improved.</p>	<p>(i)</p> <ul style="list-style-type: none"> • Speed of remote server • Communication medium • Communication type (modem, cable etc.) • Speed of home computer <p>1 mark for each up to max 3</p> <p>(ii)</p> <ul style="list-style-type: none"> • Improve type of communication (e.g. faster modem) • Improve communication medium (e.g. change from analogue to digital) • Upgrade his home computer (e.g. better CPU, more memory, faster disk etc.) • Change his ISP <p>1 mark for each up to max 3</p>
KU	<p>(b) What contemporary developments are likely to worsen the speed of Internet access?</p>	<ul style="list-style-type: none"> • Increased use of high resolution graphics • Increased use of video • Increased use of audio • Increasing use of 3D images • Introduction to VR <p>1 mark for each development up to max 4</p>

[END OF MARKING INSTRUCTIONS]