General Certificate of Secondary Education
June 20XX

Information and Communication Technology 45201

Unit 1 Systems and Applications in ICT

Specimen Mark Scheme

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

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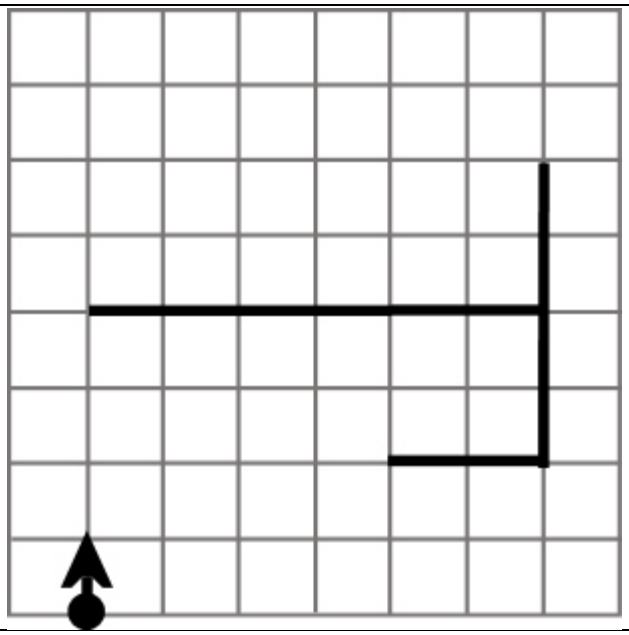
Section A

1	(a)		C (Printer) **Correct answer only**	(1 mark)
1	(b)	(i)	E (Scanner) **Correct answer only**	(1 mark)
1	(b)	(ii)	B (joystick) **Correct answer only**	(1 mark)
1	(c)		graphics digitiser concept Keyboard MICR touch screens/pad OCR reader OMR reader light Pen digital camera mouse bar code reader sensor graphics tablet **Any 1 x 1mark**	(1 mark)
1	(d)		Notebook computer **Correct answer only** PDA **Correct answer only**	(1 mark) (1 mark)
1	(e)		Software is **programs / set of instructions** **Explanation/link/judgement needs to be made** that these are needed to make the device carry out the function(s) they provide. It also makes them versatile as most can download new instructions. 2 marks could be combined into clear explanation.	(1 mark) (1 mark)
2	(a)		Features E-mail capability Functionality of a personal organiser Built-in camera QWERTY keyboard Touch screen/D-pad Accelerometer Navigation system Read documents in various formats (PDF/Microsoft Office) Media software Internet browsers Contact list **Any 1 x 3 marks**	(3 marks)
2	(b)		An explanation that a Smartphone has an identifiable operating system that allows applications to be added. An explanation/link/judgement needs to be made that this allows additional flexibility and enhanced possibilities for data processing, connectivity and entertainment. 2 marks could be combined into clear explanation.	(1 mark) (1 mark)
3	(a)	(i)	C (Graphics) **Correct answer only**	(1 mark)
3	(a)	(ii)	A (Database) **Correct answer only**	(1 mark)
3	(a)	(i)	B (Desktop publishing) **Correct answer only**	(1 mark)
3	(b)		Spreadsheet (Excel) **Correct answer only**	(1 mark)
3	(c)		Number **Correct answer only**	(1 mark)
3	(d)		=B4/C4 **Correct answer only**	(1 mark)

3	(e)		An explanation of how the amounts in column B could be changed (explain how some could go up/increase and some could go down/decrease, with possible examples). There must be an explanation that the student then needs to make judgements by checking on the Money left per week in D24, and this must NOT fall below zero.	(1 mark) (1 mark)
4	(a)	(i)	B (Chat room) **Correct answer only**	(1 mark)
4	(a)	(ii)	E (Video conferencing) **Correct answer only**	(1 mark)
4	(a)	(iii)	A (Bulletin board) **Correct answer only**	(1 mark)
4	(b)		text/letter/information (or similar) sent over the Internet/comms. Network/from computer to computer	(1 mark) (1 mark)
4	(c)	(i)	Sends another copy of the e-mail to another named e-mail address **Correct answer only**	(1 mark)
4	(c)	(ii)	Junk/ unwanted e-mails **Describe** that these are unsolicited, take time to read, fill Inboxes	(1 mark) (1 mark)
5	(a)	(i)	Text message **Correct answer only**	(1 mark)
5	(a)	(ii)	Blog **Correct answer only**	(1 mark)
5	(a)	(iii)	Wiki **Correct answer only**	(1 mark)
5	(a)	(iv)	Podcast **Correct answer only**	(1 mark)
5	(b)		The output on the computer's screen does not respond and the display remains unchanged **Explain** that 'some' appropriate action is now needed to return the computer to its normal operation (sometimes just switch off the PC and switch it back on)	(1 mark) (1 mark)

6	(a)		START (already given) (PU) (will be up already) FD1 PD FD 2 RT 90 FD 6 LT 90 or RT 90 FD 2 BK 4 END **Alternative** FD 2 RT 90 (LT 90) RT 90 (LT 90) FD 4 END	(1 mark) (1 mark) (1 mark)
6	(b)			

			START FD 1 RT 90 FD 4 PD to here 1 mark FD 2 LT 90 FD 4 BK 2 LT 90 FD 6 END 1 mark to end	(1 mark) (1 mark) (1 mark)
6	(c)		Limitation: Can only turn through 90 degrees No colour can be added Must go whole squares Appears to be limited to 8 x 8 grid No curved lines No fill facility **Explanation/judgement** of why the limitation given would make it difficult to design an attractive or complex logo	(1 mark) (1 mark)
7	(a)		Television Tuner DVD Audio CD MP3 and JPEG playback capability radio digital amplifier Surround speakers Midi Interface SCART/other connections PC input Integrated single remote **Any 3 x 1 mark**	(3 marks)

7	(b)		**Naming additional feature / service** Provides an Electronic Program Guide. Personal Video Recording (PVR) which allows you to pause and even rewind live broadcasts, as well as Electronic Program Guide, Instant Weather. Video on demand. Parental control functions. Internet connection Time shift channels/watch one and record another Pay per view events **Any 2 x 1 mark** A **clear description** of each of the given feature/service. This description could be enhanced with suitable examples. Max two features.	(2 marks) (2 marks)
8	(a)	(i)	(E) D A B B A C DC correct – first and last positions AB either order and together	 (1 mark) (1 mark)
8	(b)		Evaluation Feasibility study User training Documentation Monitoring Maintenance **Any 2 x 1 mark**	(2 marks)
8	(c)	(i)	B (Performance criteria) **Correct answer only**	(1 mark)
8	(c)	(ii)	A (Erroneous data) **Correct answer only**	(1 mark)
8	(c)	(iii)	C (Questionnaires) **Correct answer only**	(1 mark)
8	(c)	(iv)	D (Test Plan) **Correct answer only**	(1 mark)
9	(a)	(i)	OMR **Correct answer only**	(1 mark)
9	(a)	(ii)	chip and PIN **Correct answer only**	(1 mark)
9	(a)	(iii)	data logging **Correct answer only**	(1 mark)
9	(a)	(iv)	hot spot **Correct answer only**	(1 mark)
9	(a)	(v)	virus **Correct answer only**	(1 mark)
9	(b)		The idea that the data itself is coded. **An explanation/judgement** of the importance of this idea, that even if the data is stolen or lost it will be of no use to others as it is encrypted/coded.	(1 mark) (1 mark)

10	(a)		Accepting keyboard input **Correct answer only** Transferring data to a printer **Correct answer only**	(1 mark) (1 mark)
10	(b)		real time **Correct answer only**	(1 mark)
10	(c)		Multi-tasking batch processing Interactive on-line Windows … RISCOS Linux multi-user **Any 1 x 1 mark**	(1 mark)
10	(d)		Graphical (User Interface)(GUI) Command (Line) **Any 1 x 1 mark**	(1 mark)
10	(e)		Availability of a help facility **Correct answer only**	(1 mark)
10	(f)		use of colour use of sound use of images/pictures/graphics position of items on screen consistency of layout use of house style easy to use intuitive **Any 1 x 1 mark**	(1 mark)

Section B

11	(a)	(i)	The idea needed is that each record must be uniquely identifiable and this is the field that does that. May give idea by referring to the need for a key field **Any 1 x 1 marks**	(1 mark)
11	(a)	(ii)	save time typing reduce chances of mistakes save storage space **Any 1 x 1 marks**	(1 mark)
11	(b)		Cannot join in year 2018 as that's well into the future (idea of impossible as it is in the future)	(1 mark)
11	(c)	(i)	Described the ideas of: checking of data on input by software to see if it is **reasonable/sensible** **Any 2 ideas x 1 marks**	(2 marks)
11	(c)	(ii)	Could apply a suitable validation method that could be used in this situation e.g. **range check** Explain/judgement as to how the method would stop the mistake. e.g. the validation could be set up not to allow any date to be entered that was after today's date.	(1 mark) (1 mark)

11	(d)		**No rewardable material 0 marks**	(0 marks)
			Lower mark range 1 – 2 marks There are simple statements outlining responsibilities placed on the data user with limited reference of these to the question. The statements are largely recall from the statements of responsibilities given below. **Act says.** Process data fairly/lawfully Obtain data fairly/lawfully Destroy data when no longer needed/not kept longer than needed Keep data secure against /loss/damage/unlawful processing Only use for registered purpose Process within the rights of the data subjects. Keep data up to date/accurate Data must not be excessive for the purpose Data must not be transferred to countries outside EEC (or countries without equivalent DPAs)	(1-2 marks)
			Mid mark range 3 – 4 marks There is evidence of **understanding** of the **implications** of the responsibilities placed on data users. This will be shown by the use of a description that gives reasoned arguments/judgements about **these implications** and possible conclusions that might be drawn from them. A **range** of responsibilities need to be considered.	(3-4 marks)
			High mark 5 marks There is evidence of **clear understanding** of the **implications** of the responsibilities placed on data users. This will be shown by the use of a discussion that gives clear reasoned arguments/judgements about **these implications** and possible conclusions that might be drawn from them. A **range** of responsibilities need to be considered. **Mid/higher mark ranges** cannot be achieved by **simply stating the** provisions of the Act. **To gain the mid/higher mark ranges, possible implications** to the manager of some of these provisions need **to be explored.** To illustrate the application of these mark ranges, some possible examples of implications are described below.	(5marks)

			Act says	Possible implications (candidates may provide other, equally valid, responses)	
			Keep data secure against/ loss/damage/unlawful processing	The manager may need to look at enhanced ICT facilities and may need to buy extra software such as virus protection software to prevent loss or damage to the data. The manager may also need to consider additional security such as installing a firewall. Both of these would have cost implications which may need to be passed onto fans.	
			Keep data up to date/accurate	The manager may need to look at enhanced ICT facilities to increase data accuracy. May need to look at data entry involving Data validation and Data verification to achieve this. The manager may need to consider the need to employ more staff to regularly update the data. Make sure it is kept up to date. Both of these would have cost implications which may need to be passed onto the fans.	
			Process within the rights of the data subjects.	The manager will need to consider how to send the fans details of information stored about them in a reasonable time frame (if the fan asks to see it). How will the information be sent to the Fan? Will they charge the fan for sending the information? If so how much? What is the cost/staffing implication for the Fan Club.	

12	(a)		Facebook **Correct answer only**	(1 mark)
12	(b)		A way for one person to meet up with other people on the Net Contacting other people/friends To arrange to meet/find their interests/etc. To share digital files (e.g. photos). *1 mark for 'who' and 1 mark for 'why'* **Any 2 description x 1 mark**	(2 marks)
12	(c)		You can find personal details about people You can contact people you know/meet new people You can keep in contact with 'friends' who don't live nearby You can meet people with similar interests/(niche networking) **Any 2 reasons x 1 mark**	(2 marks)
12	(d)		Identity theft Members presenting themselves dishonestly/lying about themselves Meeting people who are not what they appear to be (from the website) Viruses Hacking **Any 2 disadvantages x 1 mark**	(2 marks)

12	(e)		**No rewardable material 0 marks**	(0 marks)
			Lower mark range 1 – 2 marks There are simple statements of advantages. These statements of advantages are from those given below.	(1-2 marks)
			Mid mark range 3 – 4 marks There is evidence of **some understanding** shown through the use of **mostly correct advantages** that **describe** the advantages of using a social network site compared to using a web log. Advantages given are supported by some relevant description. These examples will cover **a range** of advantages from those given below.	(3-4 marks)
			High mark 5 marks There is evidence of a **clear understanding** shown through the use of **correct** comparison that clearly **discuss** the advantages of using a social network site compared to using a web log. Advantages given are well supported by reasoned arguments. These advantages will cover **several** advantages from those given below. **Advantages to be considered** Social networking websites take a fixed format/appear the same whereas web logs are set up by the creator and can take any appearance Social networking websites have a 'ready made' audience/Internet presence whereas web logs have to build up a following Social networking websites are easy/quick to arrange meetings whereas web logs don't easily provide that facility Social networking websites are a many to many/one facility whereas web logs are a one to one facility Social networking websites have many users whereas web logs have to become known Social networking websites allow interaction whereas web logs receive and post comments Social networking websites have many functions (i.e. they may include blogs etc.) where as web logs are restricted to posting personal diaries news etc. Social networking websites create an online community whereas web logs may only be someone's personal diary Social networking websites encourage repeat visits by requesting new users to inform friend they have a presence on the network whereas it is down to the web log posting to maintain interest Social networking websites allow members to exchange digital files (photos, etc.) whereas web logs don't allow interaction	(5 marks)

13	(a)	(i)	A **'word'** typed in which allows user **access** to files/programs	(1 mark)
	(a)	(ii)	Advice which includes any of the following: Use a combination of letters (case) / numbers / other characters Make it at least (seven) characters **long** Make it so it is **NOT** easy to guess Make it so you will remember it Don't tell anyone your password / don't write it down Change it regularly **Any 3 x 1 mark**	(3 marks)
13	(b)	(i)	Someone who is involved in **illegal/unauthorised access** to a computer system	(1 mark)
		(ii)	Software such as Firewall, anti-spyware **Any 1 x 1 mark**	(1 mark)
13	(c)		Lock doors Surveillance cameras Bench clamps for computers **Any 1 x 1 mark**	(1 mark)

13	(d)		**No rewardable material 0 marks**	(0 marks)
			Lower mark range 1 – 2 marks There are simple statements of issues and solutions. These statements of issues or solutions are from those given below.	(1-2 marks)
			Mid mark range 3 – 4 marks There is evidence of **some understanding** shown through the use of **mostly correct** identification of possible health issues. Candidates **describe** these possible issues and identify possible solutions. These are well supported by reasoned arguments. A **range** of issues and solutions will be covered from those given below.	(3-4 marks)
			High mark range 5 marks There is evidence of a **clear understanding** shown through the use of **correct** identification of possible health issues. Candidates clearly **discuss** these possible issues and clearly identify possible solutions. These are well supported by reasoned arguments. **Several** issues and solutions will be covered from those given below. **Health issues** Back/Neck pain/problems Headaches Eye strain Wrist problems/Carpel Tunnel Syndrome/RSI(finger problems) Possible radiation from monitor/epilepsy from monitor **Health issues linked to a suitable solution;** Regular breaks/walk around/relaxation techniques/fresh air Correctly adjusted chair/back support correct in chair/footrest Adjust monitor distance/brightness Visit doctor/eye test Use wrist support/ergonomically designed keyboard Check radiation level/change type of monitor/possible “screen shield” **Safety issues** Trailing wires Electrical faults Overload/sockets/supply **Safety issues linked to a suitable solution;** Make sure all leads are secure/out of reach Repair faults/report faults Regular service and checks/PAT tests Use of blinds/fluorescent diffusers Install additional sockets	(5marks)

Section C

14			**No rewardable material**	0 marks
			Quality of Written Communication Skills The candidate's Quality of Written Communication Skills will be one of the factors influencing the actual mark an examiner will give within a level of response. The Quality of Written Communication Skills associated with each level is indicated below.	
			Level 1 Lower mark range **Subject Criterion Context** There are simple statements about at least one valid **advantage or** one valid **disadvantage** of the Internet access to the owner of the bookshop. Examples are supported by limited descriptions. Examples include: breaching/complying with Acts of Parliament; maintaining a safe and secure online presence; contacting people with similar/differing viewpoints; changing/increasing market presence reducing environmental issues of wasting natural resources (reduce paper). **Quality of Written Communication** The candidate has used a form and style of writing which has **many** deficiencies. Ideas are not **often** clearly expressed. Sentences and paragraphs are **often** not well-connected or **at times** bullet points may have been used. Specialist vocabulary has been used **inappropriately** or **not at all**. **Much** of the text is **legible** and **some** of the meaning is **clear**. There are **many** errors of spelling, punctuation and grammar but it should still be possible to understand **much** of the response.	(1-3 marks)

			Level 2 Lower mid mark range **Subject Criterion Context** There is evidence of **some understanding or use** shown by giving examples of at least one valid **advantage** and one valid **disadvantage** of Internet access to the owner of the bookshop. Examples are supported by limited descriptions. Examples include: breaching/complying with Acts of Parliament; maintaining a safe and secure online presence; contacting people with similar/differing viewpoints; changing/increasing market presence reducing environmental issues of wasting natural resources (reduce paper). **Quality of Written Communication** The candidate has used a form and style of writing which has **some** deficiencies. Ideas are not **always** clearly expressed. Sentences and paragraphs may **not** be well-connected or **at times** bullet points may have been used. Specialist vocabulary has been used on a **limited** number of occasions. **Most** of the text is **legible** and **some** of the meaning is **clear**. There are **some** errors of spelling, punctuation and grammar but it should still be possible to understand **most** of the response.	(4-6 marks)

			Level 3 Higher mid mark range **Subject Criterion Context** There is evidence of a more **developed understanding** shown through the use of **suitable** examples that **describe** at least one valid **advantage** and one valid **disadvantage** of the Internet access to the owner of the bookshop. Examples are supported by suitable descriptions. Examples include: breaching/complying with Acts of Parliament; maintaining a safe and secure online presence; contacting people with similar/differing viewpoints; changing/increasing market presence; reducing environmental issues of wasting natural resources (reduce paper). **Quality of Written Communication** The candidate has **mostly** used a form and style of writing **appropriate** to purpose and has expressed some complex ideas **reasonably clearly** and **fluently**. The candidate has usually used **well linked** sentences and paragraphs. Specialist vocabulary has been used on a number of occasions but **not always appropriately.** Text is **legible** and **most** of the meaning is **clear**. There are **occasional** errors of spelling, punctuation and grammar.	(7-9 marks)

			Level 4 High mark range **Subject Criterion Context** There is evidence of a **clear understanding** shown through the use of **relevant** examples that **discuss** at least one valid **advantage** and one valid **disadvantage** of the Internet access to the owner of the bookshop. Examples are well supported by reasoned arguments. Examples include: breaching/complying with Acts of Parliament; maintaining a safe and secure online presence; contacting people with similar/differing viewpoints; changing/increasing market presence; reducing environmental issues of wasting natural resources (reduce paper). **Quality of Written Communication** The candidate has selected and used a form and style of writing **appropriate** to purpose and has expressed complex ideas **clearly** and **fluently**. Sentences and paragraphs follow on from one another clearly and coherently. Specialist vocabulary has been used **appropriately** throughout. Text is **legible** and the meaning is **clear**. There are **few** if any errors of spelling, punctuation and grammar.	(10-12 marks)

15			**No rewardable material**	(0 marks)
			Quality of Written Communication Skills The candidate's Quality of Written Communication Skills will be one of the factors influencing the actual mark an examiner will give within a level of response. The Quality of Written Communication Skills associated with each level is indicated below.	
			Level 1 Lower mark range **Subject Criterion Context** There are simple statements about the changing pattern of employment for employees. Examples are just limited statements. These statements will **mention** such issues as home/teleworking, flexible hours, job satisfaction, ease of tasks, re-training, increased unemployment and work monitoring. **Quality of Written Communication** The candidate has used a form and style of writing which has **many** deficiencies. Ideas are not **often** clearly expressed. Sentences and paragraphs are **often** not well-connected or **at times** bullet points may have been used. Specialist vocabulary has been used **inappropriately** or **not at all**. **Much** of the text is **legible** and **some** of the meaning is **clear**. There are **many** errors of spelling, punctuation and grammar but it should still be possible to understand **much** of the response.	(1-3 marks)

			Level 2 Lower mid mark range **Subject Criterion Context** There is evidence of **some understanding or use** shown by giving examples of the changing pattern of employment for employees. Examples are supported by limited descriptions. These examples **will** mention with limited descriptions **such issues** such as home/teleworking, flexible hours, job satisfaction, ease of tasks, re-training, increased unemployment and work monitoring. **Quality of Written Communication** The candidate has used a form and style of writing which has **some** deficiencies. Ideas are not **always** clearly expressed. Sentences and paragraphs may **not** be well-connected or **at times** bullet points may have been used. Specialist vocabulary has been used on a **limited** number of occasions. **Most** of the text is **legible** and **some** of the meaning is **clear**. There are **some** errors of spelling, punctuation and grammar but it should still be possible to understand **most** of the response.	(4-6 marks)
			Level 3 Higher mid mark range **Subject Criterion Context** There is evidence of a more **developed understanding** shown through the use of **suitable** examples that **describe** the changing pattern of employment for employees. Examples are supported by suitable descriptions. These examples **will** consider and describe **such issues** such as home/teleworking, flexible hours, job satisfaction, ease of tasks, re-training, increased unemployment and work monitoring. **Quality of Written Communication** The candidate has **mostly** used a form and style of writing **appropriate** to purpose and has expressed some complex ideas **reasonably clearly** and **fluently**. The candidate has usually used **well linked** sentences and paragraphs. Specialist vocabulary has been used on a number of occasions but **not always appropriately.** Text is **legible** and **most** of the meaning is **clear**. There are **occasional** errors of spelling, punctuation and grammar.	(7-9 marks)

			Level 4 High mark range **Subject Criterion Context** There is evidence of a **clear understanding** shown through the use of **relevant** examples that clearly **discuss** the changing pattern of employment for employees. Examples are well supported by reasoned arguments. These examples **will** consider and discuss **a range of issues** such as home/teleworking, flexible hours, job satisfaction, ease of tasks, re-training, increased unemployment and work monitoring. **Quality of Written Communication** The candidate has selected and used a form and style of writing **appropriate** to purpose and has expressed complex ideas **clearly** and **fluently**. Sentences and paragraphs follow on from one another clearly and coherently. Specialist vocabulary has been used **appropriately** throughout. Text is **legible** and the meaning is **clear**. There are **few** if any errors of spelling, punctuation and grammar.	(10-12 marks)

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