

GCSE

Applied ICT

General Certificate of Secondary Education 4872

ICT Knowledge and Understanding

Mark Scheme for June 2010

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All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

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	estion nber	Expected Answer	Max Mark	Notes
1	(a)	The input device used to automatically read details from books and borrowers' cards One mark for a correct answer.	mark.	Correct answers only for a-c but do not penalise spelling mistakes. If candidates get 1c incorrect do not penalise them twice if they put printer in 1d this is a correct output device.
		bar-code reader	[1]	
1	(b)	Two other input devices		
		One mark for each correct answer. • keyboard		
		• mouse	[2]	
1	(c)	The output device used to create hard copies of letters written by members of staff		
		One mark for a correct answer. • printer	[1]	
1	(d)	One other output device		
		One mark for a correct answer. • monitor	[1]	
1	(e)	Two backing storage devices. Write these down in order of the speed data is transferred, fastest first One mark for each correct backing storage device.		Correct answers only but do not penalise spelling mistakes. If candidates write HDD mark this as correct for hard disk drive.
		Third mark if they are written in the correct order.		The third mark is only available if both backing storage
		faster = hard disk driveslower = DVD writer	[3]	devices are correctly identified.
1	(f) (i)	The storage device that is not backing storage		Correct answer only but do not penalise spelling mistakes.
		One mark for a correct answer.RAM	[1]	Accept Random Access Memory.

Question	Expected Answer	Max	Notes
Number		Mark	
1 (f) (ii)	Describe the purpose of this storage device Two from: temporary storage to store programs and data currently in use run many of programs at same time. used by operating system	[2]	Candidates are most likely to say something like 'to store the work you're doing' or 'to hold what you're working on'. These are fine for a mark. Do not accept volatile/lost when computer switched off as this is a description not a purpose.
1 (g)	The two devices that have a significant effect on the speed of the computer system. For each one explain why it affects the speed of the computer system 1 mark for the device plus 2 marks for the explanation: RAM (1) • with more RAM there is less need to move data on and off the hard drive/less need to use virtual memory • the computer works faster • the more RAM you have the more windows you can have open Processor (1) • carries out all the calculations/decisions/instructions/ processes needed • faster processors carry out more calculations/decisions/ instructions/processes per minute/carry processes out more quickly Hard Disk Drive (1) • the more you move data on and off the disk drive/store large amounts of data/files (1) the slower your computer will be working (1)	[6]	In this question there is one mark for the device, one mark for recognising that the device significantly speeds up/slows down the speed of the computer and one mark for saying how it performs. Cannot get marks for bullet points unless get the first mark. If candidates write the converse under each heading then award the mark.

1	estion	Expected Answer	Max	Notes
Nur	mber		Mark	
2	(a)	Circle the following features One mark each correctly labelled item: B either of the bullets, without the text C the 'Back to Main Menu' button D any or all of the title and 'Book Search Menu' OR The text on the button OR Great Albridge Library Information System E any or all of 'Search by Author' and/or 'Search by Book'	[4]	Some candidates do not follow the instructions to circle the identified elements. In the case of B, C and D it may be that a mark can be given if the candidate unambiguously identifies the required element. However, marks must not be awarded for B or E if the element is not circled, to avoid disadvantaging candidates who actually follow the instructions. B asks for a <i>bullet</i> . However, the mark can be awarded if the candidate circles both bullets (without any text). If text is included then no mark for this item. E asks for hyperlinked <i>text</i> , so candidates must not include the bullets or any other items.
2	(b) (i)	What is a touch screen One from: an input and output device a screen that allows choices/selections to be made by touching it/move a pointer and select items you touch/use your finger instead of using a mouse	[1]	Candidates frequently think that a touch screen is an interactive white board. If the answer shows very clearly that the candidate is talking about an interactive white board then do not award the marks. If there is any doubt, then candidates must be given the benefit for their answers.
2	(b) (ii)	Give two advantages of using a touch screen for the library information system Two from: easier for people who are not used to computers/some people find mice hard to control just have to touch the option you want less easily broken/tampered with/stolen than mice/keyboards less space taken up/don't need space/table	[2]	Candidates frequently think that a touch screen is an interactive white board. If the answer shows very clearly that the candidate is talking about an interactive white board then do not award the marks. If there is any doubt, then candidates must be given the benefit for their answers.

Quest		Expected Answer	Max Mark	Notes
	(c) (i)	Give an alternative device that the library could use to allow users of the multimedia information system to hear sounds One mark for a correct answer headphones/earphones/headset	[1]	
2	(c) (ii	Explain why your suggestion is more suitable than speakers One mark for each correct point: Perspective (a) sound would disturb others/affect/disrupt the peace a library needs to be quiet/bring noise into the library/silent Perspective (b) you can alter the volume for personal use you can listen to your own choice of sound not disturbed by sounds from other sources	[2]	This question can be answered from (a) the perspective of the other library users or (b) from the perspective of the individual. Candidates can be awarded marks from both. The second point might be implied if candidates point out that it is a library. eg 'It is a library and speakers would make a noise' = 1 mark 'It is a library and speakers would annoy the other users' = 2 marks
2	(d)	List the three other types of multimedia element Three mark points: • graphics/images • animation/video • text	[3]	Pictures or photos are acceptable answers for graphic images. Movement or action are acceptable for animation (as this implies animation) but not action buttons.

	estion mber	Expected Answer	Max Mark	Notes
3	(a)	Three from:		This question applies to both advantages to the public and the library when the public are using the computers. Give BoD if it is not apparent whether the answer refers to the library or the public. Since this question is about networking computer systems for use by members of the public do not accept any answers about saving/backing up/accessing work, nor about sharing data, unless this is clearly referring to an intranet/data provided by the library, nor about internal email. Do NOT accept answers about software being cheaper because you only have to buy one copy. Answers relating to installation/updating of software being easier because you only have to install it on one computer can be awarded a mark under the 'management of computer systems easier' mark point.
			[3]	Weak candidates often confuse a network with the Internet.
3	(b) (i)	Give three features Chris should look for when purchasing chairs for use in this area Three from: must have a backrest must have 5 wheels/castors/legs/stability must be adjustable/adjust the seat/adjustable height/eye level to top of computer/right height to the monitor must have a swivel mechanism must have (adjustable) arm rests/rest their arms	[3]	The first four points are clear from the HSE checklist. The use of removable arm rests is one of the usual recommendations and so should be accepted. Do not accept comfortable/padded etc.

Quest Numb		Expected Answer	Max Mark	Notes
	er (b) (ii)	 Explain why these features are necessary Two from: to prevent neck/back pain/injury/problems to support the back so people can get the chair to the right height/because people are different heights/need their chairs at different heights/so they do not have to look up and down at the screen/eyes need to be level with the top of the screen to prevent tipping to support the arm prevent RSI 	[2]	The converse is OK. Accept generalised answers unless supported by an answer which is clearly incorrect.
3 ((c)	Explain why it is important to consider the lighting in the computer area Two from: to prevent eye strain/eye problems/damage your eyes/headaches need enough light to see properly/so you can see what you are doing need to reduce glare/stops the monitor becoming the brightest object	[2]	The converse is OK.

Questio Number		Expected Answer	Max Mark	Notes
4 (a)		Explain why using their own USB sticks is useful to the users Two from: to save work to take home because they cannot save their work on the library computer so they can bring in their work/files for use on another computer/from another computer/that they have done	Mark	Remember the context of the question is use of public computers where individual users' data will not be stored. Therefore no answers relating to backup can be credited. The stem of the question refers to bringing in (their own) USB sticks hence answers to do with portable, robust, capacity are not appropriate in this section. Candidates do not appear to appreciate the fact that the library computer cannot be used to store their work
		someone may delete it if saved on the library computer	[2]	therefore 'to save work' is too vague.
4 (a)) (ii)	Give one alternative medium that could be used instead of a USB flash memory stick from: CD (any type, except CD-ROM) DVD (any type, except DVD-ROM) portable hard (disk) drive/mp3 player/mobile phone external hard drive email attachments	[1]	Note: If candidates give email attachments as an answer then you will have to refer back to this question when marking 4aiii. If the answer is email then this is wrong but continue to mark a(iii)

Question Number	Expected Answer	Max Mark	Notes
Number 4 (a) (i	Give two advantages of using a USB flash memory stick compared to the alternative you suggested in (ii) Two from: • have a greater storage capacity/more memory/space • are smaller/more convenient/easier to carry/compact • are more robust/less easily damaged/scratched • writing to flash memory is quicker/quicker to use • All computers now have a USB port but may not have a floppy disc drive If the candidate has given email or online storage as the answer in (ii) the acceptable responses here will be: • faster to save large files to memory stick/too slow to send large files by email/over the internet • large files might exceed inbox/online storage limit • memory stick can be accessed on any computer/don't	Mark	If 4aii is incorrect or blank then no marks can be awarded to 4aiii.
	need internet access (to access file)	[2]	

Question	Expected Answer	Max	Notes
Number 4 (b)	The public computers have access to the internet.	Mark	
(5)	Explain some of the problems this could cause <u>and</u> the measures that Chris needs to put in place to minimise the risks of these problems occurring		Virus protection software and firewalls are commonly bundled, so they may not be given as discrete points, but the marks may be awarded if these different features are
			identified.
	One mark for correct problem/measure and up to two marks		
	for further explanation. To gain full marks the candidate must have at least one problem and one measure.		Virus protection, firewall and anti-spyware are all software, although some candidates do not realise this. There must be some indication from the candidate's
	Potential problems		answer that they are talking about software. This may be indicated by the use of the word 'install'.
	Illegal/Offensive use (1)		If an didates use the generic town (Consuity activities by
	accessing pornographybomb-making instructions		If candidates use the generic term 'Security software by itself' then award a mark
	hacking		noon then award a mank
	sending spam		
	Viruses downloaded (1)		
	 which could spread through the network/affect the running of the computers/harm you computer/infect your files 		
	Hackers gain access to files/ computer/systems/network (1) • could gain access to library files/personal details		
	Children access chat rooms/social networking sites (1) that their parents have banned		
	 that put them at risk from paedophiles use it for bullying 		
	Measures to put into place:		
	Set restrictions on the sites (1) • so that can/cannot be viewed	[8]	

set parental controls
 ban certain websites
 keep updating this list

Make the screens visible to the library staff (1)
 so that they might see any inappropriate use
 to deter inappropriate use

Install virus protection software (1)
 keep it up to date
 run it regularly
 set it to scan all incoming files

Install firewall (software) (1)

Install anti-spyware (1)

Question	Expected Answer	Max	Notes
Number		Mark	
5 (a)	Apart from the cost, give one advantage and two disadvantages of using books when compared to accessing the information using a computer		The Encyclopaedia Britannica, on which this question is based, does offer more reference texts on DVD than are available in its 32-volume books.
	One mark for an advantage, up to two for disadvantages:		
	Advantages: • some people prefer to use books/people expect to see books in a library		Therefore, although this is not the answer we are looking for, it has to be accepted as true. This also applies to (b) below.
	 some users cannot/are not confident in use of computers portable computers breakdown Disadvantages: take longer to find what you want/computers allow fast/keyword searching take up a lot of space can get damaged/worn electronic versions can offer more/extra resources only contains text and graphics/electronic versions will contain sound/video etc 		The question doesn't mention networking but it would be reasonable for a candidate to assume that a DVD would be networked, hence the acceptability of the answer about electronic versions being used by more than one person at a time.
	 copying more difficult/needs photocopier/copying by hand/electronic versions you can copy and paste to use elsewhere can only be used by one person at a time/electronic versions can be used by more than one person at a time electronic versions can viewed from home/most book encyclopaedias can only be used in the library less likely to be up-to-date 	[3]	

Question Number	Expected Answer	Max Mark	Notes
5 (b)	Apart from the cost, give one advantage and one disadvantage of on-line access compared with the DVD One mark for an advantage, one for a disadvantage:		Although it would be reasonable for candidates to assume the DVD would be networked, this is not stated in the question. Therefore it is acceptable to credit the answers: • The DVD could be lost/scratched/stolen
	 Advantages: more likely to be up to date regularly updated (often) gives access to more information/resources than DVD may contain hyperlinks to other information/resources Disadvantages: slower to access/download information accessing video material uses a lot of bandwidth 		Only one person can use the DVD at a time
	unavailable if internet connection lostnot portable (DVD take out on loan)	[2]	
5 (c)	 Give one advantage of using DVD rather than CD DVDs store more data/have larger capacity than CDs can fit whole encyclopaedia onto one DVD but would 		
	need lots of CDs/need fewer DVDs	[1]	

	estion mber		Expected Answer	Max Mark	Notes
6			For question 6 (a)-(c), accept answers entered into the tables accurate.	rather th	an written on the lines, provided the response is clear and
6	(a)	(i)	Which field type would be used for the address fields in the Users Table? • text/char/alphanumeric		Correct answers only
			User Table		
			Address 1 Address 2 Address 3 Text (in any) 25 characters None 15 characters None 15 characters None	[1]	
6	(a)	(ii)	Text/num X What field length would be used for the title field in the Users Table • 4 (characters) User Table		
			Title Text 4 Mr/Mrs/Miss/Dr/Revd	[1]	

Question	Expected Answer		Max	Notes
Number			Mark	
6 (b) (i)	One mark for a correct form of the most likely responses are bookID ISBN book number Books Table	of identification number/co		There are other acceptable answers here.
	Key? Field Name bookID or ISBN or Book number A second mark for any two of field type, field length/format	─ ut of three sensible answe	rs in [2]	
	Eg Books Table		1	
	Key? Field Name	Field Type	Field length/fo	ormat Validation
	✓ bookID	Numeric	Integer	Created Automatically
	ISBN (old) ISBN (new) Book number	Text Numeric Numeric	13 – 17 chara Integer Integer	cters Check digit None Automatically created
	Any of the answer above in f	ield type, field length/forma	 at or validation v	Range 0000001-9999999 vill gain the second mark.

Question	Question Expected Answer Number		Notes
6 (b) (ii)	One of the fields in the Books Table is a Boolean type. What is a Boolean field Two marks for a correct answer: a two-state field/one that can only be one thing or another (2) One mark for giving an example, rather than a general definition e.g.	Mark	
	• yes/no M/F fiction/non-fiction true/false 1/0	[2]	
6 (c) (i)	Name two additional fields that are necessary in this table, other than those shown One mark for each field: UserID/User/Customer BookID/Book/ISBN/Book number Alternative field names may be acceptable but they must refer to the user and the book	[2]	Do not accept clear references to other fields in the user and book table, eg user name, book title. Remember, that to be linked the fields must be equivalent, but need not be given the same name.
6 (c) (ii)	Identify the key field for this table • LoanID Loans Table Key? Field name Field type LoanID Numeric	[1]	

Question Number	Expected Answer	Max Mark	Notes
6 (d)	Describe fully the links that are required between these tables Two links are required. Three marks for each link: 1 mark for the two tables involved in the link 1 mark for the two fields to be linked 1 mark for the type of relationship (1 to many) Examples of 6 mark answers: many to one from UserID in loan table to UserID in user table and many to one from BookID in book table one to many from UserID in user table to UserID in loan table and one to many from BookID in book table to BookID in loan table	[6]	Output Description Accept answers in diagrammatic form, eg: Books Loans Users
		[0]	diagram that morace only holes involved in the links.

	estion		Expected Answer	Max	Notes
Nu	nber			Mark	
7	(a) (a)	(i)	What is the purpose of the password One mark for showing an understanding that the password stops the data being accessed by unauthorised people Which law would Chris be breaking if she did not have a password on the database	[1]	eg 'it stops somebody opening the file unless they know the password'
7	(a)	(iii)	 Data Protection (Act/legislation) Explain what is meant by a strong password and what Chris needs to do to make sure her password is strong One mark for a definition of a strong password: one that cannot be easily guessed/broken/hard to figure out one that is complex one that is secure Up to four marks for features of a strong password: a long password/at least 6 characters long (accept more than 6) should contain both lower and upper case letters should contain (letters and) numbers/numeric digits letters and numbers are interspersed not be a real dictionary word should contain special characters not containing personal/obvious details not the same as other passwords 		For 5 marks candidates must give a complete answer containing: 1 a suitable definition of a strong password, from the first list 2 a range of features including: • length • at least two types of character that should be included, from case, numeric digits and special characters If one or more of these aspects is missing no more than 4 marks can be awarded. Nothing for needing to be able to remember the password Accept the other way round i.e. examples of why a password is weak eg. a weak password is easy to guess
				[5]	

	estion nber		Expected Answer	Max Mark	Notes
7	(b)	(i)	Give the name of the field that has been used to sort the data		Correct answers only, but do not penalise spelling errors
			Author	[1]	
7	(b)	(ii)	Books sorted in ascending order by age and then title. What is the title of the book that would come at the top of the list		Correct answers only, but do not penalise spelling errors
			Flower arranging for beginners	[1]	
7	(b)	(iii)	Describe what Chris needs to do to produce a list of all Vincent Makele's books for infants in alphabetical order of title using the database software		The search criteria might be described, eg 'write Makele, Vincent in the author column.' This is perfectly acceptable, so long as the field name and search criterion are both clearly specified. Cannot just state find Vincent
			Five from: Use a query/search/filter		Makele or Infant
			 Select the books table Select fields to include (must include title) Author = Makele, Vincent 		
			Age Group = InfantSort/Order		
			• on Title	[5]	

Que	stion nber	Expected Answer		Notes
8	(a)	Describe what Chris needs to do to add a printed photograph to the flyer she is creating scan the photograph/use a scanner/choose the scan option (from the DTP package) import/insert/copy and paste/drag into the DTP package/onto the page/into the flyer	[2]	'Insert' is the correct menu option, so must be allowed. DO NOT give a mark for 'add' – although the meaning is similar, 'add' is just repeating the question whereas 'insert' suggests knowledge of the menu option to be used. Bullet 2 – must have both import/insert/copy and paste AND DTP package/onto the page, to get the mark
8	(b)	Give two ways Chris could make the words 'Tearaway Teddy' stand out from the rest of the writing Two from: increase the font/text size change the font (face) change (the font) colour change to WordArt change to italics use emboss style use outline style embolden	[2]	
8	(c) (i)	Explain why it is not appropriate to fit the photograph into the space For two marks the candidate has to understand proportionality therefore 'photograph will be out of proportion' or 'photograph will not be to scale' (2) If the candidate says 'the photograph has been stretched/blurry/not true to its original/distorted' (1)	[2]	

Question Number	Expected Answer	Max Mark	Notes
8 (c) (ii)	Describe a more suitable method Chris should use to fit the photograph in the space Two from: need to crop from the sides of the photograph then resize/enlarge without changing the proportion/from the corner	[2]	The second point must clearly indicate that the photograph needs to be resized without changing its proportion. Note it does not matter whether the suggestion is to take the original photo and crop and resize proportionally or the stretched teddy and crop and resize proportionally
9	Explain why Chris might still decide to create leaflets		
	 One mark for each valid point, eg: leaflets can attract attention/people only see the website if they look for it people might keep leaflets/can put them somewhere where it will remind them (to go) leaflets can reinforce a personal invitation when people come into the library leaflets can be sent out to local schools there is so much information on a website people might not read it all/the part about the story-telling some people don't have access to the internet (at home)/don't know how to use the internet people might not know the address of the library website/advertise website address easier to create a leaflet/don't need so much technical expertise (1) so may take less time than putting details on the website (1) only certain people will have access/authority to update the website (1) so it might take a lot of time to get the information on (1) getting someone else/an expert to put the information on the website might cost as much/more as printing out a few leaflets can be displayed on a notice board 	[4]	

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