GCE MARKING SCHEME

SUMMER 2016

INFORMATION & COMMUNICATION TECHNOLOGY

IT1

1241/01

INTRODUCTION

This marking scheme was used by WJEC for the 2016 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

INFORMATION & COMMUNICATION TECHNOLOGY - IT1

MARK SCHEME - SUMMER 2016

Qu.	Answer	Marks	AO
1. (a)	*Example: Data 1, 63.6, 2, 59.3, 3, 59.7 (*Information Race times Swimmer 1 63.6s, Swimmer 2 59.3s, Swimmer 3 59.7s) Knowledge: Swimmer 2 is the fastest <u>and consequently wins</u>. *Example: Data 11/05/94 (* Information, John's date of birth is 11th May 1994) Knowledge, John is over18 and <u>so now he can vote in the next election.</u> Data mark not awarded if the data has units or is just a random combination which is not explained by the knowledge, The rule must be stated or strongly implied. (answer is likely to show two stages)	2x2	
1. (b)	**One mark per advantage (Max 2) from:** • Fewer transcription/typing errors or greater data consistency or faster / easier to validate (what or a why) • Processing is faster (because less RAM required) or faster to search/query (pattern matching) • Takes up less (storage) space on the hard drive / database / RAM. **NOT** More data can appear on the screen **NOT** less space **NOT** storage space **NOT** faster to spot trends **NOT** anything connected to security. **NOT** less chance of getting rsi. **NOT** easier to query a database **Encoding is not encryption. Do not accept just 'typing errors'.**	2	
	(Problem must match example to get two marks) **Any one of the following, with an appropriate/sensible example.** *Note - A well argued example could gain both marks.* **Problem** • Encoding can coarsen data / Limited choice leading to less accurate data / loss of precision • Value judgements **Example** Not enough categories when representing eye colour, or age groups (*when finding the mean have to assume all at the midpoint for grouped data*) **BUT NOT just** answers like bracketing 34 year olds with 26 year olds causes problems. Value judgements fitting into a category and subjectivity / Value judgements can lead to inconsistency, e.g. hair colour, opinion on politicians, etc. **Examples of one mark answers** • Coarsening data leading to loss of precision • Limited Choice leading to less accurate data • Value judgements can lead to inconsistency **Examples of two mark answer** • Coarsening data can lead to loss of precision if dark brown, mousy brown, light brown are all classed as brown. • Value judgements can lead to inconsistency for example if asked "Was the meal 'excellent', very good', 'good', or 'poor'?" One person's excellent meal is only good for another. **NOT** unable to understand the code or mixing up the code	2x2	

Q.	Answer	Marks	AO
2.	**One mark for each specific use, advantage and disadvantage x2** **Graphical User Interface** **1 mark Description of use** *(Must give specific use)* For a primary school child using a maths program. Setting up a profile on a games console Customising a desktop/ application Calling a person on a mobile phone / customising / navigating a mobile phone / tablet app. **1 mark for Advantage** It makes the operation of the computer as friendly as possible by using high resolution graphics and pointers, making it as intuitive for a user as possible, instead of typing in commands you enter them by pointing and clicking. Fun to use / colourful / easy to use as do not need to know commands / easier to customise backgrounds fonts / intuitive etc **1 mark for Disadvantage** Have to go through a number of steps to get where you want / slows an expert user down Needs a powerful processor Takes up a lot of hard disk space / memory **Command Line Interface** **Use: e.g.** • Expert using it to find information on network/system configuration • Writing small batch files in DOS **Advantage:** • Fast to execute (run) • Don't have to go through menu system/faster to enter commands (not type) • Needs very little overheads (memory/processor) **Disadvantage:** • Need to know the commands / need to spell commands correctly • Only experts are able to use them • A lot of typing • Can be frustrating for inexperienced users if they don't know the commands. An advantage of one cannot be awarded as a disadvantage of the other for 2 marks.	3 3	

Q.	Answer	Marks	AO
3.	**Any five from (have to have at least one of each for full marks)** Answers must be in context of an organisation **Advantages** • Messages can be sent across the world for the price of a local phone call. / if got a system cheaper than posting • Functions such as editing and forwarding / collaborative working • You can (use an address book to / group send) send the same message to several different people for the same cost <u>as one call</u> / at <u>the same time</u> • Don't have to leave the house to send the information (teleworking) / disabled use. • Environmentally friendly / paperless office. • Global accessibility / Can pick it up anywhere / on a number of devices(if qualified.) • Can store a copy to have an audit trail / can keep backups • Easier to find a stored email than a filed letter. • Use of a thread / conversations • Gives a wider audience for advertising. • Can be legally binding. • Can copy someone into an email without other recipients seeing that you have copied them in. **Disadvantages** • You are reliant on the recipient having an email account / Users need to be computer literate. (NOT Need an internet connection) • There are <u>security</u> and privacy issues. Confidential mail is travelling across a very public network. • Junk / Spam email can clog your system • Damage can be caused by malware – viruses etc but NOT attached • Distract from work • Damage done by email scams / phishing • Inappropriate use of email e.g. bullying, unsuitable content, distributed denial of service attack. **Security could be given either as an advantage or disadvantage if well argued but do not accept reverse argument for second mark**	5	

Q.	Answer	Marks	AO
4.	**1 mark for description of function and 1 mark for benefit x3** **Templates** Are prewritten master slides/ layout with design and some basic information already included.	1	
	It saves you having to create from scratch. This could be the corporate identity making it look more professional / giving a house style / On the master slide these could be a layout with company colours and logo.	1	
	Animated transitions This is when you give an entry/exit effect when you move from one slide to another e.g. such as fading.	1	
	This could be used to keep the customer interested / fun to watch / improves the flow of the presentation.	1	
	Data Compression Reducing the size of the presentation/ Storing the presentation in a format that requires less memory space than usual.	1	
	So that it takes less time when you are transferring from branch to branch. Faster uploading to website Transmit the same amount of data in fewer bits	1	
5.	**3x (1 mark for each advantage and 1 mark for each example)** **Advantages – each point must be illustrated with a suitable example.** **Data storage capacity /** Able to store an enormous amount of information in a small space such as a hard drive, e.g. all the information on the pupils in a large school will fit on a hard drive compared to a huge number of filing cabinets. **Accurate calculations /** Calculations are carried out accurately, e.g. in a payroll spreadsheet if formula and data are correct then calculations will be correct. **Speed of data communications /** Messages sent out across the world instantaneously, e.g. an email can be sent from the UK to the USA within seconds. **The ability to produce different output formats /** Information can be produced in tabular or graphical format, e.g. a scientist producing a report will include data in a table and to make some of them easier to understand will produce some of them as graphs. (Not mail merge) • Ease of editing, because you do not have retype the whole document (1) and suitable example for second mark **NOT** to do with handwriting. (Well qualified) • Easier to back up data .... (Well qualified). • Allows predictive analysis / gives *better* management information NOT general points such as security.	3x2	

6

Q.	Answer	Marks	AO
6.	**Definition 1 mark, name of method 1 mark, description 1 mark** Verification is the use of checks to make sure data is consistent and has not been corrupted**.** **or** Verification is the checking that data has been copied accurately <u>from one medium to another</u> (entered correctly but data might not itself be correct). **Proof reading / Read before you submit –** being asked to check what you have entered is correct before being allowed to move on, i.e. ordered the right amount of items. **Double entry –** having to re-input your account number, email address or the password 'when creating the account or changing a password'**.** **Description must be sensible and relevant to online shopping and can be awarded even if name not there if it is clear which it is.**	3	
7.	**3 marks for music and 3 marks for photography. One mark for stating the actual use and then two of the extension points x2**	2x3	
	Mp3 player / Portable music player (NOT brand name) Listen to 1000s of tracks on a small portable player Listen to favourite music wherever they are Record and edit sound Can create personal playlist If used a brand name, can still gain impact marks.		
	Music downloads Allows you to select only the tracks you want / Saves money on buying whole albums Song information download Can automatically group songs based on genre Allows live streaming		
	Music composition, Digital sound technology allows you to create edit and hear your own music. <u>Hardware</u> Using instruments such as electronic keyboards with Midi interfaces Description of sound card technology <u>Software</u> Multi track sequencers Notation software Sound wave editing Allows experimentation		
	Digital photography and movie making including device. Take many but only keep / print out the ones you want Only pay/printout the better ones and saves money Only save the ones you want so saves memory Can digitally edit and enhance photos Variety of ways to display/distribute/share/upload to social media e.g. online in e-books or on TV / download onto computer		

Q.	Answer	Marks	AO
8. (a)	**Four marks for description of any 4 of the following methods. No mark for just naming the method. No list mark awarded.** **4 marks for the method and 6 for the advantages** **OMR** Teachers are given an OMR form with class lists each week and they put a black mark whether present or absent. The form is read by computer and an absent list produced. The teacher marks the reason for the absence in the correct space on the OMR form. **Radio tags** As pupils enter a classroom the PC detects their presence from the tag and adds the information to the central register. **Admin software on PC / laptop / tablet / phone** Teachers take the register on their machines and the information is transferred electronically to the central server. **Bromcom/wireless** In some schools the teachers have a specialised device with a wireless link to the admin server. Teachers fill in an attendance form at the beginning of every lesson and this is wirelessed up to the office **Smart cards** Each pupil has their own smart/swipe card which they swipe through a computer at the beginning of registration and every lesson. This data is sent to the office either by wireless or by file transfer. **Biometrics (Once)** Each pupil as they enter the classroom they place their thumb on the fingerprint reader. This data is sent electronically to the office. (same for retina scanning). **Advantages** • Saves teachers/<u>teaching time</u> • Improved attendance • Easier to spot absence patterns • Improved tracking of attendance cuts down internal truancy • Automatic SMS messages to parents • Automatic creation of statistics, automatic archiving /sharing of data • Know which pupils are in and are late • Know where pupils are all times if year tutor wants to see them • Printout report summary to check pupils % attendance • Multiple access points to the data **Condone - marks for method specific advantages** **7-10 marks** **Candidates give a clear, coherent answer fully and accurately describing three methods, discussing advantages and a disadvantage. They use appropriate terminology and accurate spelling, punctuation and grammar.** **4-6 marks** **Candidates give brief descriptions of three methods, and give advantages and a disadvantage but responses lack clarity. There are a few errors in spelling, punctuation and grammar.** **1-3 marks** **Candidates simply list methods but may not give advantages or a disadvantage, or give a brief description of one. The response lacks clarity and there are significant errors in spelling, punctuation and grammar.** **0 marks** **No appropriate response.**	10	

Q.	Answer	Marks	AO
8. (b)	**Three advantages and one disadvantages (1 mark each), x2** **Distance Learning** VLE/Videoconferencing are examples of distance learning. **Advantages** Don't have to be in the same location as teacher/pupils who are ill can keep up to date. Students don't have to travel / can work at home / empowers disabled Can access more courses / allows access to courses not taught in your school. Classes can run with small number of pupils. Shared expertise. Potential cost saving to schools if well qualified. Flexibility of time. Schools can offer classes to other schools. Allows collaborative working. **Disadvantages** Diminish literacy – texting. Cost implication of installation. Lack of personal support <u>close at hand</u> / <u>immediacy</u> No peer interaction. Pupils must be motivated to achieve their goals. Need for equipment at home. Broadband problems (if qualified) Hard for a teacher to gauge pupil progress. **CAL** **Advantages** Pupils work at own pace. Good for pupils with learning difficulties. (customisation) Pupils respond better to automated feedback. Can gauge their own progress / instant feedback / automatic marking. Engaging screens - colour/animation/sound/video. Automatic generation of progress reports. Special adaptations can be built in / Can target specific areas. Materials provided in different formats such as text, voice, video, animations. Have flexibility as to where and when they work, at home, in car, out walking/running. Variety of activities can motivate and maintain interest. Can access material using different hardware e.g. laptop, mobile phone, mp3 player, tablet. (No brand names) Available at any time. Revisit when you need to. Multilingual support. Not embarrassed if you get it wrong, **Disadvantages** Lack of personal support (close at hand) No peer interaction/social interaction. Cost of software/specialist hardware. No collaborative learning. Hard for a teacher to gauge pupil progress. **Note: same answers cannot be credited twice.**	4 4	

Q.	Answer	Marks	AO
9	**1 mark for each point, max 2 for advantages and max 2 for disadvantages.** **Advantages (max 2)** Only takes 1 hour to produce a 6 day forecast. Can predict path of hurricanes, etc. Can help farmers plan work / Local councils plan / etc. **Disadvantages (max 2)** 160 million equations to solve – cost of buying a supercomputer. Long range forecasts cannot be <u>100%</u> accurate in predictions. Freak storm / unusual patterns difficult to predict.	2 2	
10. (a)	Two marks for each formula No mark for naming formula up to 2 marks for description of what it Does. Purpose plus extension or purpose plus detailed description of data used gains both marks. (What and why) A: SUM, COUNT, MAX, MIN, AVERAGE, RAND e.g. My Count formula on page 5, cell D24, counts the number of numbers in cell range A23 to D23 (1) It can help you work out the mean of a set of numbers by giving you the number to divide the total by (1). COUNTIF, etc., are also acceptable RAND generates a random number between 0 and 1 (1) in my range, on page 10, it is used to generate the number of sales of hot cross buns in cell E25 (1). NOTE The use of RAND to generate a unique number is incorrect I used the SUM function (SUM C2:C24) in column C of page 3 to add up all the costs of the different items sold every week (What) to work out my total cost to help me decide if I need more staff (Why). Must be specific and related to work in their sheet.	2x2	
10. (b)	**VLOOKUP and variations** I used Vlookup in cell H14 on page 10 to find the price of the product (1) You can update a table of prices without having to rewrite formulas such as multiple IF statements. (1) Faster to automatically enter data (1) Reduces transcription errors/data entry errors/potential errors (1),	3	
10. (c)	**One mark for naming the validation technique and field up to two marks for detailed description or alternative third mark for describing the actual error message (must be customised error message to the application).** e.g. I put a range check on my hotel room number in cell A10 (1) of between 1 and 100 (1) as the hotel only has 100 rooms (1) I used a length check on the credit card number in cell G5 (1) to set the text length to 16 characters (1) as credit card numbers all have 16 numbers as the 'long number' on the front (1)	3	

Q.	Answer	Marks	AO
10. (d) (i)	Two marks for description of a macro process. What and Why 　　Must be a macro used in the candidates spreadsheet. 　　　　e.g. My Print macro on page 2, defined the special print 　　　　settings in the Page Setup dialog box (1) and printed the 　　　　invoice (1). 　　　　e.g My navigation macro on page 4 and where is it going 　　　　to/between (1) this will make it more user friendly / to move 　　　　backwards and forwards more efficiently (1)	2	1 x AO2
10. (d) (ii)	What and why 　　I searched the town field for Borth on page 13 (1) as I needed to 　　see who lived closest to the marina as an assistant hasn't turned 　　up and I need someone to get there quickly (1)	2	1 x AO2
10. (d) (iii)	What and why 　　I used a breakeven graph on page 12, in my profit loss graph,(1) 　　this allowed me to find the number of items I had to sell before I 　　was going to start making a profit and then target that product for 　　promotion.(1) 　　I used a bar chart of location of sales on page 14 (1), this allowed 　　me to easily see the area in which we sold the least product and 　　could target that area for promotion. **NOTE** 'A visual representation of the data' is insufficient for the mark	2	1 x AO2