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GENERAL CERTIFICATE OF EDUCATION
TYSTYSGRIF ADDYSG GYFFREDINOL

MARKING SCHEME

ICT
AS/Advanced

SUMMER 2008

INTRODUCTION

The marking schemes which follow were those used by WJEC for the Summer 2008 examination in GCE ICT. They were finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conferences were held shortly after the papers were 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 conferences was to ensure that the marking schemes were 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' conferences, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about these marking schemes.

UNIT 1

1

4.	Any two of 2x2 1 mark for each type given 1 mark for each advantage NB Advantages must be different Internet/Intranet/Extranet/search engines Keyword searches, Interactive resources, editable information, copy and paste pictures/diagrams into reports, wider choice/variety of information available, current information, easier/quicker to search for information. Email experts/specialists Book might be available, email could give faster response Post questions on bulletin boards/Forums Reach wider audience of experts CD based software or Online encyclopaedias Easier to carry, keyword searches, copy and paste pictures/diagrams into reports, editable information, current information, easier/quicker to search for information. Teletext/Interactive TV if qualified	4
5. (a)	1 mark for each definition 2x2 1 mark for each relevant example (i) Graph Pictorial representation of numerical data – pictures/diagrams showing information Example Graph of heart beat /brain waves Graph of costs of drugs <i>Any reasonable answer but <u>must not be general</u></i> (ii) Template Prepared spreadsheet with general features already added Example Data on heart rate is always displayed in the same place and in the same format. <i>Any reasonable answer which is clearly related to spreadsheets</i>	4
(b)	1 mark for each <u>named</u> example 2x2 1 mark each for more detailed description of process <u>Barcode systems</u> Unique barcode on blood Which can trace the blood from who gave it to patient if problems found. Bar code of blood group patient bracelet The scanned barcode on the patient's bracelet and the scanned barcode on the unit of blood have to match before the blood can be administered as part of a treatment. Bar codes on patients/babies To avoid patients leaving ward, kidnap or mixing up babies Bar codes on medicines Repeat prescriptions and giving the correct drugs to the patient. <i>Any suitable answer.</i> <u>Computer control</u> Examples Alarms on Maternity wards Goes off if baby taken out wearing sensor in wrist bands Alarms in ICU If heart/brain functions stop doctors are warned Robotic Surgery Carrying out operations, helping surgeons Controlling medicines Automatically controlling the rate of flow of the drip <i>Any reasonable answer but must have an element of control not just sensing or data logging.</i>	4

6.(a)	Any two features from the list supplied (1 mark for definition 1 mark for advantage) 2x2	4												
	<table border="1"> <thead> <tr> <th>Feature</th><th>Definition</th><th>Advantage</th></tr> </thead> <tbody> <tr> <td>Hatching or Rendering</td><td>Different finishes or materials can be displayed</td><td>Can do 'what if' type investigations to explore the best finishes</td></tr> <tr> <td>Walkthrough</td><td>Visit rooms etc. in 3D</td><td>Allows spatial awareness (size) of what the design looks like in relation to other features</td></tr> <tr> <td>Stress and Strain</td><td>Working out the weights materials can take</td><td>Avoids disasters later on when building as the designer should build well within safety requirements</td></tr> </tbody> </table>	Feature	Definition	Advantage	Hatching or Rendering	Different finishes or materials can be displayed	Can do 'what if' type investigations to explore the best finishes	Walkthrough	Visit rooms etc. in 3D	Allows spatial awareness (size) of what the design looks like in relation to other features	Stress and Strain	Working out the weights materials can take	Avoids disasters later on when building as the designer should build well within safety requirements	
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(b)	Any three points from Security monitored from a central point, messages can be distributed to all workers instantaneously, only have to backup from one point, easier to have joint working on a plan, easier to upgrade the software, major peripherals can be shared, access plans on site.	3												
7.	Note - Need to mention all three Acts for maximum marks – one mark per relevant point. Well argued answers with good examples need not have six separate points. If only one act covered then max four marks. Crimes against the Misuse Act are backed up with fines and prison (differing scales). Hacking, blackmail using a computer, spreading viruses. Onus in DPA on companies to register, to keep data secure, up to date and to obtain data lawfully. Copyright Act tries to stop people copying software. (Could mention Freedom of Information Act or Intellectual Property Rights)	6												
8.(a)	One mark for each description/purpose of Input, Output and Storage (max 3) e.g. Input - Barcode reader is used at the PoS to scan the information in on each product. (Could mention keypad, scales) Output - An itemised till receipt is printed out for each customer, the operator can check each item displayed on the screen. Storage - The information about each sale is stored at each PoS and then sent down to the hard disk on the store PC. Sales data stored on the shop database.	3												
(b)	One mark for each relevant point (max 3). Stock sold causes decrement of stock in store, compare stock level with reorder level, if less automatically reorder, manager can overwrite automatic level if notice a pattern. Number reset after delivery.	3												
(c)i)	Two marks for each relevant benefit to the company 3x2 Allows just in time rather than keep a lot of stock thus saving the company from having money and warehouse space tied up. Better management statistics so the company can decide whether they need more checkouts or better trained staff. See patterns in sales so that they can decide whether they want to override the automatic stock refill. Less time in queues hence more sales/happier customers. Don't have to price every item hence saving a lot in staff wages which can be passed on to the customers and gives greater profit for the company, less money tied up in stock. Minimises human error.	6												
(c)ii)	One mark for each relevant benefit (max 2) Can save money, can buy from anywhere in the world, wider range of goods available to them, 24 hour shopping, less need to travel (haven't got to leave home), allow easier comparison of prices, less need to carry cash.	2												
(d)	One mark for each potential disadvantage (max 2) No power – no sales, attacks from viruses/worms, over reliance, hacking, initial cost to purchase it, losses due to card fraud, loss of reputation, re-training existing staff, cost of maintenance/update.	2												
	Quality of Written Communication	2												

ICT

UNIT 4

1.(a)

[4]

(b)

[2]

[2]

2.(a)	1 mark for ring shape and labelling cable 1 mark for position of file server and terminal	[2]
(b)	If cable breaks network can continue working Very easy to add new machines	[2]
(c)	1 mark for naming each factor and 1 mark for fuller description x 3 (i) Security issues • How secret is the data • Consequences of others seeing it • Firewall • Number of users • Spyware, viruses, hackers, etc. (ii) Size of the organisation • Needs can range from a small LAN to a global WAN • Some communications media are limited to the distance they have to travel • Amount of data processing required must also be considered. (iii) How the system will be used • What type of applications do users require? • Will they need large data storage? • From where will they operate the network e.g. at home in office or remote access from different locations. (iv) Existing systems to integrate • More often networks are not developed from scratch but need to fit in with existing systems. Sometimes an extension is required e.g. when a new branch office opens. • Therefore any new network must fit in with the operating systems and protocols of the existing. • It must support any peripherals already in use e.g. bar code readers, printers, etc. (v) Performance and speed required Performance in terms of: • reliability • user friendliness • capacity • speed of processing. Different parts of the organisation may have different performance requirements. e.g. a realtime e-commerce system may require greater speeds and capacity and security than the in house payroll system	[6]

3.(a)	1 mark for explanation 1 mark for example An intranet is network set up entirely within a LAN and can only be accessed internally. (like local closed internet) Examples Internal email for users Storage and access to draft internal council papers Quick consultation	[2]
(b)	1 mark for each method x 2 1 mark for description of how used x 2 Bookmarks / Hyperlinks Predefined links which take you directly to part of the page Hotspots Click on an image of the item to find out more details on the article / go to a particular area of council business Keyword searches Type in a keyword and go directly to that section	[4]
4.(a)	1 mark for each factor and 1 for each further explanation • Identify potential threats • Likelihood of risk occurring • Short and long term consequences of the threat • How well equipped is the college to deal with the threat • How much money the college has	[4]
(b)	Example Problem: Staff unaware of who actually is in college (1 mark) this could be very dangerous if there is a fire or looking for an at risk pupil, etc. (2nd mark for more detail) Steps: Have a backup system (1 mark) which staff could have emergency access to lookup information. (2nd mark more detail). Other points: set up a disaster recovery system, employ a RAID system	[4]
5.	Any four of the following, discussed in detail, with examples: 4 x 2 or 2 x 4 • censorship, for example in Burma, China • accuracy of information – if it is on the Net people believe it to be true • privacy – people can look at photos etc, which are meant to be for family only, etc. • effects upon communities (e.g. corner shop closing) • ownership and control / intellectual property rights – who owns the information • plagiarism (buying exam answers) • lack of social interaction – people don't go out and talk to other people • gaming addiction – led to a big increase in addicts – online poker • electronic bullying – pupils sending nasty emails to each other, etc. • bad websites / inappropriate content (suicide, racism, pornography) <i>If candidate mentions four <u>crimes</u> (e.g. bomb building instructions), maximum two marks.</i>	[8]

6.(a)	A relational database is a large collection of data items and links between them (1 mark), structured in such a way that allows it to be accessed by a number of different application programs. (2 nd mark) or use of primary and foreign keys.	[2]
(b)	Accept underline or asterisk as indication of key field and over line as an indication of foreign keys. PATIENT (<u>Patient Code</u>, Name, Address, DOB, Gender) <i>1 for suitable table name</i> <i>1 for suitable primary key field</i> APPOINTMENT(<u>Appointment Code</u>, Patient Code, Doctor Code, Time, Date, Room) <i>1 for suitable table name</i> <i>1 for suitable primary key field</i> <i>1 for Patient Code as foreign field</i> <i>1 for Doctor Code as foreign field</i>	[6]
(c)(i)	Distributed databases are different databases stored at different locations but linked together so they appear to be one large database. 1 mark per point (max 6) (at least 1 of each to get 6) Advantages • Data used locally can be stored locally and network traffic kept to a minimum • If data lost on central site it could be reduplicated from local site • Allows sharing of the data and the results of processing the data • New locations can be added to the database without the need for rewriting the entire database Disadvantages • Software more complex than a centralised database system • Because data is transferred it presents more of a security risk by hackers • As all the data is not stored in one location if a local site does not have adequate backup then this data might be lost to others. • If data is stored and updated in more than one place there is an increased chance of data inconsistency.	[6]
(ii)	Any 3 benefits at a mark each and 1 concern If you were taken into any hospital anywhere in Britain they could call up your notes and see if you are, for example, on any medication at the moment. This can only lead to better diagnosis of patient's problems and improve the chances of survival. The computerising of the patient records would also create a huge database of all the people in Britain. This could also allow an epidemiological investigation to take place. People's records could be compared to see what treatment worked and what other factors there may have been for some complex illness. Trends could be spotted at their early stage and remedial action taken to stop them quickly. This information would be available no matter where the hospital was or what the condition of it is. A database such as this can also be seen as a step towards a national identity programme where to get treatment one would have to have proof of nationality and proof of residence in this country. You would have to exist on the database before you could be dealt with. Immigrants, legal or otherwise would have to prove their adherence to these rules. The main concern is big brother watching you or the danger of someone getting your data (hacking) and misusing it.	[4]

7.(a)	At least one sentence to get a mark. • Keeping a catalogue of stock for sale • Methods of secure payment • Database of customers' orders • Maintenance/monitoring of web site • Some sites allow you to keep track of the progress of your order.	[4]
(b)	Any valid point 1mark (max 14). Very well argued point could be worth 2. Reasons • They can advertise. It enables people to find out what they do and what they sell. • People can email them with enquiries; orders; requests. • They can reach an international audience. • Technology has advanced and now made a lot more possible. Services • Companies can advertise goods and services only • Companies sell goods and services e.g. Tesco home shopping, buying music, making customised t-shirts • Subscription services which sell information e.g. MetOffice weather data, research papers, legal cases database • Interactive sites which encourage feedback on products • Auction sites such as Ebay Advantages to customers • There is no travelling – it can be done from home so saving in costs and time • Allows disabled people to do more shopping • Can be done 24/7 • Much quicker to do a price comparison • Can find obscure goods not available locally Advantages to businesses • Overheads cut. Large savings on shops, warehouse and office space • Wider customer base • Customers can be kept in touch with by email and informed of new products. Disadvantages • Credit card fraud • Fake websites - goods do not exist • Copycat websites to extract bank account info • Fewer shops on the High Street • Lack of social interaction • Increase in delivery vans Other effects • Code of conduct • Security issues • Firewalls • Job loss • Change in working practices	[14]
	QWC	[2]
TOTAL		60



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