



**GENERAL CERTIFICATE OF EDUCATION
TYSTYSGRIF ADDYSG GYFFREDINOL**

2009 – 2010

**INFORMATION AND
COMMUNICATION TECHNOLOGY**

**SPECIMEN QUESTION PAPERS
SPECIMEN MARKING SCHEMES**

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WELSH JOINT EDUCATION COMMITTEE
General Certificate of Education
Advanced Subsidiary/Advanced



CYD-BWYLLGOR ADDYSG CYMRU
Tystysgrif Addysg Gyffredinol
Uwch Gyfrannol/Uwch

INFORMATION AND COMMUNICATION TECHNOLOGY

IT1

INFORMATION SYSTEMS

SPECIMEN PAPER
(2 ¼ hours)

INSTRUCTIONS TO CANDIDATES

Answer **all** questions in Section A and in Section B.

The intended marks for questions or parts of questions are given in brackets []. You are advised to divide your time accordingly. The total number of marks available is 80.

You are reminded that assessment will take into account the quality of written communication used in answers to question 5 and question 8.

(b) Give **an** example of a problem that could arise if information is not:

(i) up to date; [1]

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(ii) complete; [1]

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(iii) accurate. [1]

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Use distinctly different examples in **each** case.

3. Banks use *verification* and *validation* methods to reduce data entry errors in their on-line banking systems.

(a) Define the term *verification*. Name and describe **one** verification method used in on-line banking systems. [3]

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(b) Define the term *validation*. Name and describe **one** validation method used in on-line banking systems. [3]

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4. A large national supermarket company uses a database to store customers' records.

(a) Define **each** of the following functions of the database software and give an appropriate example of how **each** can be used *in this context*:

(i) import/export; [2]

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(ii) query; [2]

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(iii) report. [2]

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(b) State **two** requirements of the Data Protection Act that the supermarket has to comply with. [2]

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6. *Expert system shells* are important in the development of medical expert systems.

(a) Describe the **three** main parts of every expert system shell. [3]

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(b) Describe, using examples, **two** advantages of using an expert system in medicine. [2]

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7. The use of ICT systems in the home is growing daily.

(a) The HCI (Human Computer Interface) in software used to help young children learn is important.

With reference to appropriate examples, discuss **two** factors that should be taken into account when designing such an interface. [4]

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(b) Using a suitable, relevant example describe one health issue raised by the increased use of ICT systems in the home. [2]

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(c) Describe **two** methods of *validation error trapping* used in your spreadsheet. [4]

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(d) Describe the purpose or function of **two** other *different processes* you used in your spreadsheet. [4]

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In your answer do not describe any feature you gave in parts (a), (b) or (c)

ENSURE YOU ATTACH THE PRINTOUTS OF YOUR SPREADSHEET TO YOUR EXAMINATION ANSWER PAPER

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INFORMATION AND COMMUNICATION TECHNOLOGY

IT3

USE AND IMPACT OF ICT

SPECIMEN PAPER
(2 ½ hours)

ADDITIONAL MATERIALS

In addition to this examination paper, you will need a 12 page answer book.

INSTRUCTIONS TO CANDIDATES

Answer **all** questions in Section A and **one** question in Section B.

The intended marks for questions or parts of questions are given in brackets []. You are advised to divide your time accordingly. The total number of marks available is 100.

You are reminded that assessment will take into account the quality of written communication used in answers to question 4 and question 7.

SECTION A

Answer **all** questions.

1. The Human Computer Interface is an important part of an ICT system. Name **four** factors which must be taken into account when designing a good user interface. Explain why **each** factor is important. [8]
2. A pet shop wishes to offer customers an interactive on-line shopping service.
 - (a) Other than hardware, discuss in suitable detail, **four** requirements needed to implement such an interactive on-line shopping service. [4]
 - (b)
 - (i) Give **two** advantages to the *customer* of on-line shopping. [2]
 - (ii) Give **two** advantages to the *business* of on-line shopping. [2]
 - (iii) Describe **two** possible problems when shopping on-line. [2]
3.
 - (a) Other than cost or security issues, explain in detail **two** factors that could influence the choice of a computer network for a company. [4]
 - (b) Two types of network that could be used are *peer to peer* and *client server*. Compare and contrast these **two** types of network. [4]
4. Other than crime, discuss in detail **two** of the major moral, social or ethical issues associated with the *Internet*. Use distinctly different examples in **each** case. [8]
5. The IT section in a college has decided to introduce a code of conduct for all its IT users. Discuss possible problems which might have prompted this decision and suggest suitable guidelines which could be included in the code of conduct, to avoid such problems in the future. [6]
6. Most modern computer systems now use relational databases with Database Management Systems (DBMS).
 - (a) Compare and contrast the problems that arise with data redundancy, data integrity and data consistency in flat-file databases compared to relational databases. [6]
 - (b) Explain what is meant by a Database Management System and contrast their advantages and disadvantages. [6]
7. Compare and contrast the features/factors which make the difference between a good Management Information System (MIS) and a poor MIS. Use examples wherever possible to illustrate your answer. [13]
8. Despite rigorous testing, it is sometimes necessary for software developers to undertake maintenance on systems. Explain why this might happen and outline some of the different types of maintenance that might be undertaken. Illustrate your answer with suitable examples. [8]

9. An organisation has introduced new ICT systems. These systems have had a great impact upon employment.
- (a) Discuss two potential health issues which might occur with the introduction of these new ICT systems and describe measures the organisation can take to prevent them. [4]
 - (b) Describe the impact these new ICT systems could have upon job and work patterns. Illustrate your answer with distinctly different examples in each case. [6]

SECTION B

Answer **either** question 10 or question 11

10. Most organisations now have ICT security policies.
- (a) Discuss in detail the potential threats to data and the possible consequences of accidental or deliberate destruction of data. Illustrate your answer with distinctly different examples in **each** case. [8]
 - (b) Discuss **three** methods which could be used to prevent the deliberate destruction or misuse of data. [9]
11. (a) A hospital uses a relational database management system for storing patient records. Staff and patients are allocated to wards.
- (i) Explain what is meant by a relational database. [2]
 - (ii) One table in this database could be
WARD (WardId, NumofBeds, *StaffId*)
with WardId being the primary key and *StaffId* the foreign key.
Give **two** other suitable tables you could expect to see in this database, identifying any primary or foreign keys. [5]
 - (iii) Explain why relational databases are more secure than a flat file approach for storing patient records. [2]
- (b) Hospitals use distributed medical databases. Describe the problems that could arise when using such distributed medical databases. [4]
- (c) The use of video conferencing has now become important in the Health Service. With reference to appropriate examples, discuss **three** uses of video conferencing in the Health Service. [4]

Unit IT1
Mark Scheme

Note - Examples have to be in context to gain credit.

1. Information consists of processed data or data with a context 1
 Knowledge is derived from information by applying rules to it 1
 Appropriate example covering both parts... 2
 For example, *information* could be 1.03, 1.07, 1.15 minutes, times in a swimming race. *Knowledge* would be that the 1.03 has won because the rule is that the person who completes the swim in the shortest time is the winner.
- [4]
2. (a) (Up to two marks for costs and up to two marks for examples)
- | | | |
|-----------------------------|-----------------------------------|---|
| Two other costs, e.g.: | time | 1 |
| | human resources | 1 |
| Appropriate examples, e.g.: | the time consuming nature | 1 |
| | the specialist staff requirements | 1 |
| | the time to re-train | |
- (b) Three appropriate examples (one mark for each)
 (up to date) e.g. letters sent to deceased people causing great heartache 1
- (complete) e.g. an address on a letter without a postcode will delay delivery 1
 an incomplete order resulting in non delivery of some items
- (accurate) e.g. receiving a domestic gas or electricity bill for thousands of pounds because a meter has been mis-read 1
 the wrong phone number being copied down in a conversation could make it impossible to contact a person or company
- [7]
3. (a) *Verification* is the checking that data has been copied from one medium to another 1
 No mark for method but up to two for description. 2
 e.g. proof reading – checking through a document (1) to find errors not picked up by spell check (1)
 double entry - another person retyping in cheque amounts (1) and software compares both before accepting (1) or
 customers typing their passwords twice (1) when they open an account / change password. (1)
 visual check - showing data you have entered (1) and asking if it is correct (1)
- (b) *Validation* is checking that data is reasonable and sensible 1
 No mark for method but up to two for description. 2
 e.g. check digit - on the account number (1) to ensure it is valid (1)
 range check- on the amount of money that can be transferred (1) or on the date on which the transaction should occur (1)
 presence check - on the required fields (1) to reject data where fields have been left blank (1)
 type check - to check if data is of a particular type (1) not a number when a string is expected (1)

[6]

4. (a) Up to two marks for each function e.g.
- (i) *Import/export* - Transferring data to and from another program (1)
by producing a list of customers who buy luxury goods to sell to another company (1)
 - (ii) *Query* - searching the database (1) looking for customers who buy expensive cheeses to target them with other luxury items (1)
 - (iii) *Report* - output from the system (1) such as all people who buy nappies more than twice a week (1)

Note – the question asks for ‘customer records’. If the candidate has used the context of ‘stock’, condone on this occasion but the maximum mark is five out of six

- (b) Any two relevant sections of the Act, for example... 2
- Having to register that they are keeping data
gathering the data fairly and lawfully
keeping the data secure etc.
gathering only data needed for the stated purpose
making sure the data is not used for any reason other than the stated purpose
making sure the data is accurate and up-to-date
making sure the data is secure
not keeping the data for longer than is necessary
customers have the right to view the data stored about him
customers have the right to have the data changed if it is incorrect
- [8]

5. Candidates may include the following:

Easier to share data between employees especially if someone is away
Can share a good quality printer to produce better-looking reports
Only have to install software at one point
Backup is easier
Maintenance is more efficient
technical support can be centralised

5-6 marks Candidates give a clear, coherent answer fully and accurately describing and explaining at least three distinct benefits. They use appropriate terminology and accurate spelling, punctuation and grammar.

3-4 marks Candidates give explanations of some benefits, but responses lack clarity. There are a few errors in spelling, punctuation and grammar

0-2 marks Candidates simply list up to three benefits or give a brief explanation of one or two. The response lacks clarity and there are significant errors in spelling, punctuation and grammar.

Do not accept just ‘sharing software’.

[6]

6. (a) *Max 3 marks*
- Knowledge base – the part of an expert system that holds knowledge about the domain (such as drug side effects) 1
- Inference engine – a piece of software in an expert system that does the searching of the knowledge base 1
- User interface – communicates with the system and passes requests for advice to the inference engine 1
- (or equivalent descriptions required) (three terms gets only 1 mark)
- (b) *Max 2 marks.* 2
- for example –
- Medical staff can analyse symptoms more quickly (1) allowing doctors more time to deal with serious cases (1) faster diagnosis for patients (1)
- Doctors have access to more up to date/specialist knowledge (1) on illnesses which are rare or uncommon enabling them to make more accurate diagnoses (1)
- Do not accept 'faster', 'more accurate' on their own.* [5]

7. (a) No mark for naming factor. Two from e.g. 2
- Colour 2
- not choosing red and green (colour blindness)
 - variety of colours to make it appealing to use
 - to make it easy to learn
- Pictures / icons 2
- to help choose the correct options
 - to make it easy to learn
- Consistency
- to make it easy to learn
 - familiarity with other packages
- Uncluttered
- size of icons
 - layout
- Use of text
- appropriate font size
 - appropriate words/phrases (use of language)
- Input methods
- appropriate devices
- Sound
- to maintain interest
 - to satisfy the needs of specialised users

Note – the points must be distinct to gain credit.

- (b) No mark for issue. Up to two marks for suitable example. 2
e.g.
RSI/back trouble – Sitting for long periods (1) at a poorly organised workstation (1) can lead to muscular problems such as backache or RSI.
Eyestrain/headaches – Spending too long looking at a vdu (1) or poor lighting around workstation (1) can cause eye strain or headaches.
epileptic fits – People who are prone to epileptic fits can be triggered (1) by the flicker produced by slow refresh rates of some vdu screens (1)
general health - Increased evidence of obesity in children (1) can be due to sedentary lifestyle induced by computer games, the internet and chat rooms (1)

[6]

8. (a) (i) description for two appropriate ICT systems:
e.g
OMR - Teacher marks on OMR sheet (1) which is taken/sent to office and scanned into the computer (1)
typing in at PC/tablet – Teacher marks using keyboard/stylus (1) directly into admin/attendance software (1)
swipe cards - Pupils/students swipe card (1) through card reader by entry door (1)
fingerprint – Pupil/student places finger on fingerprint scanner (1) record updated on computer (1)
Accept each reason once only. [4]

- (ii) Candidates may discuss a range of the following:

more accurate (updates list when pupil comes to school late),
easier to do more often (lesson by lesson),
have not got to send somebody down to the office with the register,
information can be accessed at more than one point at the same time,
automatically produce reports,
better statistics for senior management,
can see who is not taking the register,
can also see when it is done,
easier to update when notes are sent in, takes up less space,
easier to archive material
4 marks Candidates give a clear, coherent answer fully and accurately describing and explaining two or three advantages.
2-3 marks Candidates give explanations of one or basic details of two advantages.
0-1 marks Candidates simply list advantages.

[4]

- 8 (b) Candidates may discuss a range of the following:

dob to calculate age
exam number to uniquely identify candidate
roll number,
Medical info in case of serious health problem
Next of kin for emergencies etc.

7-10 marks Candidates give a clear, coherent answer fully and accurately describing and explaining at least four distinct fields and why they are needed. They use appropriate terminology and accurate spelling, punctuation and grammar.

4-6 marks Candidates give explanations of some fields and why they are needed, but responses lack clarity or relevant examples. There are a few errors in spelling, punctuation and grammar.

0-3 marks Candidates simply list four or five fields or give a brief explanation of one or two fields and why they are needed. The response lacks clarity and there are significant errors in spelling, punctuation and grammar.

[10]

Section B

9. Two marks for benefits, further two marks for expansion. Max 3 if only one benefit.
e.g.

Automatic recalculation (1) if data such as rate of pay changes (1)

Can do what if's (1) to model different costs of parts, etc (1)

Can draw graphs for reports (1) to highlight cash flow (1) or compare monthly outgoings (1)

Accurate calculation of wages and bills (1) will increase efficiency/save on time (1)

[4]

10. **IF NO SPREADSHEET EVIDENCE SUBMITTED THEN NO MARKS CAN BE AWARDED. THE LEVEL OF DIFFICULTY ARISES HERE AS THE CANDIDATES NEED TO HAVE EXPERIENCED HIGH LEVEL SPREADSHEET WORK.**

- (a) **MAX 4 marks**

No mark for naming formula up to two marks for description of what it does

e.g.

My IF .. THEN .. ELSE formula checks to see if the number in cell A23 is greater

Than the number in cell A24 (1) If it is it returns the middle value Profit, if not it returns the value False (1)

My VLOOKUP formula in cell B15 scans rows in the stated range for the comparison values (1) and returns the data from the indexed column (1)

[4]

- (b) one mark for stating method, up to two marks for description, up to two marks for advantages to a max of four

e.g.

List boxes (1) select text from a pre determined list (1) reducing data entry errors (1) increasing efficiency (1)

Option or check boxes (Boolean choice) (1) clicking in the cell for yes/no data (1) places tick in the cell (1) increasing efficiency by saving time (1)

Spinners (1) use a button to let you see how input changes (1) will alter the outputs in a model (1) so you can see different outcomes more easily (1)

[4]

- (c) One mark for naming a validation technique up to three marks for detailed description
e.g.

I put a range check (1) of between 1 and 9999 (1) on my customer order number (1) to ensure numbers were within the correct range (1)

I used conditional formatting (1) by putting a preset formula (1) e.g. to work out the date (1) for data in another cell (1)

I set the text length (1) to 10 characters to put a limit (1) on customer Postcode (1) to prevent incorrect data being entered (1)

[4]

- (d) No mark for naming a different process but up to two marks for detailed description. Must be a macro used in candidate spreadsheet. Examples could come from: Sort, Search, Macro, 3D referencing, Graph, Output Report (Invoice)/ data entry form (Order Form), VB Code, etc.

e.g.

My macro defined the special print settings in the Page Setup dialog box (1) and printed the invoice (1)

I used 3-D referencing formulas to summarise monthly data (1) onto the annual summary sheet (1)

[4]

ASSESSMENT GRID**Information and Communication Technology****(IT1)**

| | | Assessment Objectives Raw Marks (Actual/Notional) | | | Paper Total Mark | Synoptic (✓) |
|--------|---------------|--|------------|------------|------------------------|-----------------|
| | | AO1 | AO2 | | | |
| UNIT 1 | | 56 % [AS] | 4% [AS] | QWC (✓) | | |
| | Q1 | 4 | | | 4 | |
| | Q2 | 7 | | | 7 | |
| | Q3 | 6 | | | 6 | |
| | Q4 | 8 | | | 8 | |
| | Q5 | 6 | | ✓ | 6 | |
| | Q6 | 5 | | | 5 | |
| | Q7 | 4 | 2 | | 6 | |
| | Q8 | 15 | 3 | ✓ | 18 | |
| | Q9 | 4 | | | 4 | |
| | Q10 | 16 | | | 16 | |
| | TOTAL (Marks) | 75 | 5 | | 80 | |

Unit IT3
Mark Scheme

| Question | Answer | Max mark |
|---------------------|--|----------|
| 1. | Any four of the following, discussed in detail: No mark for simply naming factor 4 × 2 Font size – readability (1) appropriate to level of user (1) or avoid eye strain (1) Consistency of signposting and pop up information – intuitive (1) so user learns faster (1) On screen help – important if help not available when working (1) Layout appropriate to task – faster to type in for expert (1) or example of differentiation between user expertise/ intended audience (1) Clear navigation structure – saves time wasting (1) easier to work through (1) Colour – blue/yellow good combination (green/red blindness) (1) ability to customise (1) | 8 |
| 2. (a) | Any four of the following, discussed in suitable detail: 4 × 1 ISP Maintaining a company website/ need for trained staff Catalogue of stock, stock database Methods of secure payment / shopping trolley Database of customer orders <i>If candidates just state four points then maximum mark is 2.</i> | 4 |
| 2. (b) (i) | Appropriate advantages such as: 2 × 1 24 hour access, greater choice, no need to travel, allows disabled to shop more easily, better prices | 2 |
| 2. (b) (ii) | Appropriate advantages such as: 2 × 1 cheaper as no need to pay high rates, wider customer base, takes pressure off staff, offer wider choice due to 'just in time' | 2 |
| 2. (b) (iii) | Any possible problems, such as: 2 × 1 customer worries over security, anyone can set up, no longer a social activity, fraud, power cut, hidden costs of carriage or import tax, hidden costs and phone costs, what you get is not what you see, harder to return (if well argued) <i>Note – question mentions 'describe' not just 'state'.</i> | 2 |
| 3. (a) | No mark for factor but up to two for detailed explanations: 2 × 2 such as size of organisation (1) will impact on network configuration (1) how the system will be used (1) will influence scale of network (1) performance required (1) will influence choice of server (1) existing systems / what is already in place (1) will be easier to extend because of staff familiarity (1) network configuration (1) will depend on layout of site (1) or whether a LAN or WAN is needed (1) | 4 |

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| 3. (b) | <p>Any four relevant points (1 mark each), but must make reference to features of both systems to gain maximum four marks:</p> <p>Peer to peer system Lower setting up costs Simpler to set up and/or maintain Does not rely on a single server Only suitable for small networks Data is not centrally stored Backup and security is not centralised</p> <p>Client server system Generally quicker than peer to peer networks Security and backups are centrally managed Data is easily accessible to all users A server is required so it costs more to set up May need a network manager to run effectively If the central server crashes the whole network goes down.</p> | 4 |
| 4. | <p>Candidates may include a range of the following:</p> <ul style="list-style-type: none"> • censorship by government • effects upon communities • privacy, • ownership and control / intellectual property rights, • plagiarism (buying exam answers), • lack of social interaction, • gaming addiction, • electronic bullying, • bad websites / inappropriate content (suicide, racism, pornography), • accuracy of information, <p>6-8 marks Candidates give a clear, coherent answer fully and accurately describing and explaining at least three issues giving relevant examples. They use appropriate terminology and accurate spelling, punctuation and grammar.</p> <p>3-5 marks Candidates give explanations to a range of issues, but responses lack clarity or relevant examples. There are a few errors in spelling, punctuation and grammar</p> <p>0-2 marks Candidates simply list up to three issues or give a brief explanation of one or two issues. The response lacks clarity and there are significant errors in spelling, punctuation and grammar.</p> | 8 |

| | | |
|--------|--|---|
| 5. | <p>Candidates may discuss a range of the following:</p> <p><i>Problems</i></p> <ul style="list-style-type: none"> • Introduction of viruses / own disks • Personal use of equipment or Internet • Running up phone bills • Personal email • Distribution of racial or sexual materials • Fraud • Swapping identities (theft or given) • Abusive emails • Slowing down of network • Games playing • Illegal use of software <p><i>Guidelines</i></p> <ul style="list-style-type: none"> • Responsibilities • Respecting rights of others • Warning about monitoring • Abiding by current legislation • Protecting hardware and software from malicious damage • Complying with licensing agreements • Authorisation • Permissions on data access • Security defining rules • Rules about personal use • <p>4-6 marks Candidates give a clear, coherent answer fully and accurately describing and explaining at least three problems suggesting suitable guidelines. 2-3 marks Candidates give explanations to one or two problems with and suggest guidelines, 0-1 marks Candidates simply list problems or suggest one or two guidelines.</p> | 6 |
| 6. (a) | <p><i>Data redundancy</i></p> <p>This is an important concept in database design. It refers to the unnecessary duplication of data. In a flat-file database details about such information as customer details will be duplicated. In a well-designed relational database there should be no 'repeating attributes', no piece of data should be unnecessarily repeated.</p> <p><i>Data integrity</i></p> <p>The integrity of data is the correctness, i.e. the extent to which it truthfully represents the original information. One of the problems of maintaining integrity arises when updating occurs, and every record has to be changed in a flat-file database, if one record was left unchanged the data would no longer be wholly correct. In a relational database you only have to change data in one table and all other references in any other table will automatically be changed.</p> | 6 |

| | | |
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| | <p><i>Data consistency</i></p> <p>When data is held in more than one file it should be stored in a consistent way. A date field could be stored in file as a text field but in another field as a date/time field and the data would be incompatible. In a relational database because the attributes of any one entity are contained within one file, there is no risk of the same attribute being stored in a different format in a different file.</p> | |
| 6. (b) | <p>A DBMS is a method for managing the interface between the data that an organisation stores and the program that it uses to access the data. Typically, an organisation will store its data in a series of connected data files, e.g. a relational database.</p> <p><i>Advantages</i></p> <ul style="list-style-type: none"> • There is a greater degree of data standardisation within the organisation. Users are obliged to use the same data definitions and work within the confines of the data dictionary. • Security is improved because the database is centrally located and access to it can be controlled. • Data is independent from the programs that interact with it. This means that new programs can be created without developers having to worry about creating or amending underlying data structures. • It is an economical use of organisational resources. The data only has to be stored once. It can then be accessed by the different functional area of the organisation. This creates savings in terms of hardware and memory requirements. <p><i>Disadvantages</i></p> <ul style="list-style-type: none"> • The creation and maintenance of a large scale DBMS will be costly. It is likely to require expensive hardware, considerable memory resources and high-specification processing devices. Cost may also be incurred acquiring the necessary staff expertise. • Security procedures have to be detailed and extensive if an organisation's data resources are all centrally located. The organisation is more vulnerable to a disastrous data loss and so will need a well-maintained disaster recovery policy. • Database management systems are complex products. In developing associated programs, developers will need to understand all of their workings. The training and additional time that this might involve will add to development costs. | 6 |

| | | |
|----|---|----|
| 7. | <p>Management Information Systems (MIS) are organised collections of people procedures and resources designed to support the decisions of managers.</p> <p><i>Candidates may include some of the following:</i></p> <p><i>Features of good MIS</i></p> <ul style="list-style-type: none"> • Accuracy of the data • Flexibility of data analysis • Providing data in an appropriate form • Accessible to a wide range of users and support a wide range of skills and knowledge • Improve interpersonal communications amongst management and employees • Allow individual project planning • Avoid information overload <p><i>Factors which can lead to poor MIS</i></p> <ul style="list-style-type: none"> • Complexity of the system • Inadequate initial analysis • Lack of management involvement in initial design • Inappropriate hardware and software • Lack of management knowledge about computer systems and their capabilities • Poor communications between professionals • Lack of professional standards <p>10-13 marks Candidates give a clear, coherent answer fully and accurately comparing and contrasting at least four features/factors giving relevant examples. They use appropriate terminology and accurate spelling, punctuation and grammar.</p> <p>5-9 marks Candidates compare and contrast a range of features/factors, but responses lack clarity or relevant examples. There are a few errors in spelling, punctuation and grammar</p> <p>0-4 marks Candidates simply list four or five features or give a brief explanation of one or two features/factors. The response lacks clarity and there are significant errors in spelling, punctuation and grammar.</p> | 13 |
|----|---|----|

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| <p>8.</p> | <p><i>One mark for each point up to max 8. Max six marks if no examples</i></p> <p>e.g.</p> <p>'Bugs' (1) which may not have been identified during the testing process (1) become apparent when the system is operating in a live environment (1)</p> <p>Users may, after a period of time (1) find a particular aspect of the software unsatisfactory (1) e.g. tables may be difficult to format for printing (1)</p> <p>Changes in the business environment (1) e.g. change in legislation (1) may mean that the software is required to perform tasks it wasn't originally designed for (1)</p> <p>A security issue (1) e.g. a virus threat (1) may emerge which means that the system requires an extra level of protection (1)</p> <p>The software provider may discover a way to make the application run more efficiently (1) e.g. floating editing windows (1)</p> <p>New software or hardware may be purchased (1) the integration of which requires changes to existing systems (1) e.g. purchase of new printers with incompatible drivers (1)</p> | <p>8</p> |
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| <p>9. (a)</p> | <p><i>Candidates may include some of the following hazards:</i></p> <p><i>Hazard</i> RSI repetitive strain injury caused by prolonged working at computers or computer games Eye Strain or epileptic fits Back problems Ozone irritation from laser printer Radiation affects embryos leading to miscarriages Wi-fi</p> <p><i>Prevention</i> Ergonomic keyboards / wrist and foot supports /correct chair positioning / adjustable chairs Non flickering screens / Screen filters to remove glare / correct lighting in the room / tilting screens Take regular 15 minute breaks / walk around the room Locate personal laser printer one metre away from user Only switch on when needed</p> <p>4 marks Candidates give a clear, coherent answer fully and accurately describing and explaining two hazards and suggesting suitable prevention measures. 2-3 marks Candidates give explanations to one or two hazards and prevention measures, 0-1 marks Candidates simply list hazards or suggest one or two prevention measures.</p> | <p>4</p> |
| <p>9. (b)</p> | <p><i>One mark for each point up to max 6. Max four marks if no examples. e.g.</i></p> <ul style="list-style-type: none"> • Teleworking - working from home using computer networks (1) saves on transport / environmental costs (1) • Video conferencing - allows remote meetings (1) saves time in travel (1) which can be used more productively (1) • Lost jobs - unskilled manual jobs lost (1) such as filing clerks (1) • Call centres have caused many people to lose jobs (1) e.g. bank clerks (1) as they have been moved abroad where labour is cheaper (1) leading to ICT 'sweat shops' (1) • Retraining – need to acquire new skills (1) to use databases / spreadsheets / e-mails / programming etc. (1) e.g. wages clerk now uses specialist software (1) • New jobs - systems analysts, programmers needed (1) to write applications or tailor DBMS for users (1) | <p>6</p> |

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| <p>10. (a)</p> | <p><i>Candidates may include some of the following threats and consequences:</i></p> <p><i>Threats</i></p> <ul style="list-style-type: none"> • Terrorism • Natural disasters • Sabotage • Fire • Theft • Poor training (accept, but not condone) <p><i>Consequences</i></p> <ul style="list-style-type: none"> • Loss of business and income • Loss of reputation • Legal action • (Not just data loss) <p>6-8 marks Candidates give a clear, coherent answer fully and accurately describing and explaining at least three threats and consequences illustrating them with different examples. 3-5 marks Candidates give explanations to one or two threats and consequences but responses lack clarity or relevant examples., 0-2 marks Candidates simply list threats and consequences or suggest one or two guidelines and may not give examples.</p> <p><i>Note – no credit for simply 'backup'.</i></p> | <p>8</p> |
| <p>10. (b)</p> | <p><i>Candidates may discuss some of the following prevention methods:</i></p> <p>Methods for controlling access to computer rooms Methods of securing integrity of transmitted data e.g. encryption Methods including private and public keys. Call back procedures for remote access Establish firewalls Use virus scanners Proxy servers Password systems Methods to define security status and access rights for users Methods for physical protection of hardware and software Security of document filing systems</p> <p>6-9 marks Candidates give a clear, coherent answer fully and accurately describing and explaining at five prevention measures. 3-5 marks Candidates give explanations three or four prevention measures but responses lack clarity. 0-2 marks Candidates describe one or two simply list prevention measures.</p> <p><i>Note - no credit for simply 'backup'</i></p> | <p>9</p> |

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| 11. (a) (i) | <p><i>Suitable definition of a relational database, such as</i> 2</p> <p>A large collection of data items and links between them (1) structured in such a way that it allows it to be accessed by a number of different applications programs (1).</p> | 2 |
| 11. (a) (ii) | <p><i>Award one mark for each table name and each key field, one mark for both foreign keys, and one mark for two other relevant fields in each table e.g.</i></p> <p>STAFF, (<u>Staff no</u>, Name, contact no, <i>Ward no</i>)</p> <p>PATIENT, (<u>Patient no</u>, Name, illness, <i>Ward no</i>) <i>Would gain full marks</i></p> | 5 |
| 11. (a) (iii) | <p><i>Any two relevant reasons e.g.</i> 2 x 1</p> <p>Hierarchy of passwords Storage of data separate to programs Access rights to parts of the program</p> | 2 |
| 11. (b) | <p><i>Up to two marks for two problems:</i> 2 x 2</p> <p>e.g.</p> <p>More complex (1) hence more expensive to install and maintain (1) Increased security risk (1) from transferring files (1) If one location fails might hinder others (1) staff may not be able to access critical data (1) Could get data inconsistency (1) because a large number of people can access files (1)</p> | 4 |
| 11. (c) | <p>Any two reasonable uses, discussed in appropriate detail, such as:</p> <p style="text-align: right;">2 x 2</p> <p>e.g.</p> <p>Regional meetings can take place without staff leaving the hospital (1) so can do more work as no time lost in travel (1) Consultation with specialist can take place at a distance (1) suitable example e.g. skin cases referred to experts (1)</p> | 4 |

ASSESSMENT GRID**Information and Communication Technology****(IT3)**

| | | Assessment Objectives Raw Marks (Actual/Notional) | | | Paper Total Mark | Synoptic (✓) |
|--------|---------------|--|------------|-----|------------------------|-----------------|
| | | AO1 | AO2 | QWC | | |
| UNIT 1 | | 22 % [AL] | 8% [AL] | | | |
| | Q1 | | 8 | | 8 | ✓ |
| | Q2 | 10 | | | 10 | ✓ |
| | Q3 | 4 | 4 | | 8 | |
| | Q4 | 8 | | ✓ | 8 | ✓ |
| | Q5 | 6 | | | 6 | |
| | Q6 | 6 | 6 | | 12 | ✓ |
| | Q7 | 13 | | ✓ | 13 | |
| | Q8 | 2 | 6 | | 8 | |
| | Q9 | 10 | | | 10 | ✓ |
| | Q10 (option) | 17 | | | 17 | ✓ |
| | Q11 (option) | 17 | | | 17 | ✓ |
| | | | | | | |
| | TOTAL (Marks) | 71 | 24 | | 100 | |