ASSESSMENT and QUALIFICATIONS ALLIANCE

Mark scheme January 2001

GCE

Information and Communication Technology

Unit ICT1

Unit 1: Information: Nature, Role and Context

1. Three components of an Information Processing System are input, processing and output. State what is meant by
Input
Processing
Output
and give an example of each one.

6 marks

3 × 2 marks, possible to get any of the individual marks

Input - **capturing data** (1) plus example (1)
Key words capturing/entering and data for first mark

Processing - **converting** data into information (1) plus example (1)
Converting/changing/ordering/giving meaning to data NOT processing

Output - **information** produced (1) plus example (1)
Must have information involved for first mark

2. When incorrect bills are sent to customers, an organisation often gives the reason as "The computer got it wrong". Using an example, give a more likely explanation.

4 marks

Concept of incorrect data being entered initially(1) plus example(1)
Means output, i.e. bill, will be incorrect(1) example(1)

Question is about incorrect bills i.e. calculations/values are not correct. Wrong and incorrect do not mean the same thing.

DO NOT ALLOW THE WRONG ADDRESS ANSWERS
BUT DO ALLOW
Bugs/incorrect formulas/poorly tested software resulting in incorrect calculations.

Marks allocated as follows:
1: concept of incorrect input/incorrect processing
2: for example of above

Only if have 1 and 2
3: Idea of incorrect output as a result of 1

Only if have 3
4: example of 3

3. A Company is recruiting a new member of staff for their IT support desk. The head of personnel asks the manager of the support desk what personal qualities the new employee must have in order to carry out the job effectively.

State, with reasons, four personal qualities that the manager would want a new employee to have.
8 marks

Any 4 × 2 marks. 1 for quality: 1 for reason

Willing to work flexible hours (1) – user support roles require the ability to stick at problems and see them through, may entail working when users don't need equipment e.g. installing new software or fault correction (1)

Be able to communicate well orally (1) - – to enable efficient and effective communication with users/or colleagues – e.g. interviewing and questioning effectively to obtain end user requirements (1)

Good written communication skills (1)– ability to write documentation both technical and end users e.g. necessary for recording faults clearly and documenting solutions (1)

Ability to work as part of a team (1) – means able to exchange views, share information, usual way of working in many IT establishments. (1)

Organisational skills/work under pressure (1)– ability to take orders, to be responsible for own work for example to have several different jobs running concurrently (1)

Ability to listen/patience (1)– if cannot, then users wants are often misinterpreted or ignored and instructions not followed correctly (1)

Perseverance/problem solving (1) – both analysis and programming require the ability to stick at problems and see them through. (1)

Also accept ability/willingness to learn new skills(1) as ICT moves forward so quickly.

N.B. If only state qualities and do not give reasons maximum is 4 marks and the reasons must be relevant to the job i.e. to ICT and not generalised..

DO NOT ACCEPT: initiative
managerial skills
technical
previous experience
or other generalised answers

4. State three factors that affect the value and importance of information. Give an example that shows clearly how each factor affects the information's value.

6 marks

1 mark for stating: 1 mark for example

For example:

Accuracy (1) - if the data is inaccurate wrong decisions can be made (1) e.g. ordering too many of an item because the previous week's sales suggest that the stock is low or demand is high. Inaccurate information has little value.

Intended use (1)– information intended for a branch manager of a supermarket showing till usage to allow them to allocate staff over a weekly period is used to give the Regional manager a view of the efficiency of the branch. Information not designed for a particular use is usually irrelevant or misleading. (1)

Cost (1)– If the information has been obtained cheaply e.g. by using too small a sample or inadequate equipment then only garbage will have been collected and, therefore, there will only be garbage coming out. In general the higher the cost the more accurate the output. (1)

Timeliness (1) If the information is not produced when it is needed then its value is reduced (1) e.g. previous months sales figures needed at end of month to set future targets (1)

Max 6

Any 3 × 2 marks

Also accept :
Cost – cost benefit gained must be greater than cost of obtaining
Relevance but not if intended use already given credit – it is basically another way of saying the same thing.
Completeness/adequate
Up to date/age of data

Watch that they do actually give specific examples that clearly show …

5. When buying a new house through a large estate agency, customers are asked if they object to the data they are giving to the estate agent being passed on to other companies.

a) Explain why the estate agent must ask this question. 2 marks

b) State, with an example, what the estate agent could do with the customers' details if they give permission for them to be passed on? 2 marks

a) Legal requirement (1) of Data Protection Act (1)

b) Sell them(1) to other companies e.g. builders(1)

If give, transfer, sell without an example 1 mark, with example 2

N.B.SPECIAL CASE
Do not accept simply pass on as this is in the question. Pass on with an example 2 marks.

6. The use of e-mail has increased dramatically over the last five years. This has improved communications both internally within a company, and externally between companies and their suppliers and customers.

Describe the facilities of an e-mail software package that you would use to carry out the following tasks efficiently:

a) Pass on an e-mail message that you have received, in error, from a customer to the sales manager. 2 marks
b) Inform a group of staff about the time and date of a meeting. 2 marks
c) Send designs of a new product to the manufacturing department. 2 marks
d) Send an important and urgent message to a supplier. 2 marks

a) Forward(1) plus description of how it works(1)
Not return it to sender or type in new name must be explicitly forward

b) Use of group facilities(1) plus description of how it would be used(1)
Must be group not send to multiple addressees by typing names in

c) Attachments(1) plus description idea of a file(1)
Not cut and paste

d) Prioritising(1) plus description(1)
Not typing urgent into heading line

Key word is efficiently
Don't accept the same answer for more than one i.e. forward only for a)

7. A school wishes to allow its students unrestricted access to the Internet for research work during their lunchtimes. The headteacher is concerned that this might cause problems.

State two problems that the headteacher might be concerned about, and for <u>each</u> one explain a measure that could be taken to prevent the problem.

6 marks

2 × 3 marks

Students seeing inappropriate material/pornography/ email sites e.g. hotmail (1) use of net nanny or similar (1) to prevent access to inappropriate sites (1)

High telephone bills (1) use of charging system for students (1) students have to pay for own individual use and therefore will be more cautious (1)

Misuse by students for ordering goods / or own email etc (1) use of a code of practice with disciplinary measures (1) means have measures to control students - disincentive (1)

Misuse by students trying to run own business(1) measure as above(2)

Stalking or leaving oneself open to stalking(1), code of practice as above(2)

Overuse by certain students restricting access for others(1) time limits(1) to allow everyone ability to use(1)

Viruses being downloaded(1), anti-virus software(1) which would detect/disable any(1)

Be prepared for individual specific examples from candidate's own experience.

1 mark for **problem,** 1 mark for **stating solution** and 1 mark for **explaining** how the solution would work.

8. a) State five of the principles of the 1998 Data Protection Act 5 marks

b) Describe two exemptions to the 1998 Data Protection Act 4 marks

1 mark each for any of the eight principles :

N.B. This list contains nine - the eight from the 1984 Act and the new one from 1998 Act. Will probably have to allow both as text books incorrect/not updated

- data shall be obtained and processed fairly and lawfully
- personal data shall only be held for one or more specified and lawful purposes
- personal data shall not be disclosed or used in any manner incompatible with that purpose or purposes
- personal data shall be adequate, relevant and not excessive for the purpose
- personal data shall be accurate and up to date
- personal data shall not be kept for longer than is necessary for the purpose
- an individual shall be entitled to be informed of what data is held on them, to view it and to ask for it to be corrected NB not actually change it
- appropriate security measures shall be taken against unauthorised access to, alteration or disclosure or destruction of personal data
- personal data shall not be transferred to a country or territory outside the European economic area unless that country or territory ensures an adequate level of protection

This is the summary list currently on the DP Registrar's website.

- fairly and lawfully processed;
- processed for limited purposes;
- adequate, relevant and not excessive;
- accurate;
- not kept longer than necessary;
- processed in accordance with the data subject's rights;
- secure;
- not transferred to countries without adequate protection

b) Exemptions 2 × 2 marks 4 marks

Examples such as:

- national security
- crime
- taxation
- health, education and social work
- regulatory activities – protecting people from dishonesty and malpractice, charities
- journalism, history and statistics
- available under enactment – i.e there is other legislation which makes the information available
- law/legal proceedings
- domestic

1 mark for naming: 1 mark for description
Cannot get 4 marks for four separate exemptions

N.B. QUESTION CONCERNS 1998 ACT
Exemptions are specifically mentioned in the Act. They are not the same as areas that are not covered by the Act such as emails.

9. Describe three features of poorly designed software that can cause stress or other health problems to a user.

6 marks

3 × 2 marks

1 mark for **stating** and 1 mark for **explaining** how it causes health problem - second mark achievable only if have the first.

Examples such as:

▪ Poor use of colour(1)	too bright for continuous use(1)eye strain unsuitable for colour blind people(1)frustration
▪ Poor error messages(1)	user doesn't understand what to do(1) frustration
▪ Insufficient instruction(1)	user doesn't know how to proceed(1) stress
▪ Poor help(1)	user cannot learn (1)stress
▪ Poor menu design(1)	takes long time to navigate(1)stress
▪ Lack of shortcut keys(1)	slow to use(1)stress or RSI from repetitive actions
▪ Poorly tested software leading to bugs(1)	stress from frustration (1)
▪ Software that is not compatible with other software used(1)	leading to slow use/frustration/stress(1)

Lack of downwards compatability (1) leading to redoing work etc, stress(1)

NO credit should be given for hardware related problems

Must be features not general statements, e.g. complicated and difficult

10. The use of Information and Communications Technology (ICT) has brought benefits to a number of areas.

For each of the following, state a use of ICT, and describe the benefit that can be gained. Your examples must be different in each case.
a) Education
b) Health
c) The home
d) Offices
e) Manufacturing companies
f) Police **12 marks**

2 marks for each area - 1 mark for the **example** of a use of ICT and 1 mark for the **benefit.**
Second mark dependent on the first

Allow descriptions of uses of individual pieces of software e.g. word processing, email, etc.

Examples such as: NB There <u>are</u> others they can use

a)	Distance learning (1)	wider market area (1) or ability to take courses (1)
	Computer based learning package (1)	reduction in staff costs (1)
	Use of Internet(1)	ability to research topics(1)
b)	Computer based records (1)	easier to find information on patients (1)
	Monitoring equipment (1)	provides instant information - cuts staff costs (1)
	Expert systems(1)	aid to diagnosis(1)
	Computer assisted operations(1)	greater accuracy/success rate(1)
c)	On line shopping (1)	saves time (1)
	Email (1)	allows easy communication with friends and family
	Leisure/games software(1)	improving co-ordination/ giving pleasure(???)

Don't allow tele-working as this is not home use
Don't allow electronic appliances – not Information Technology

d)	Electronic communication (1)	easy to keep in touch with customers (1)
	Word processing/DTP software (1)	better image/ more customers (1)
e)	JIT (1)	saves on storage/avoids waste
	Robots (1)	reduce staff costs (1)
	CAD(1)	saves on wastage, better designs, more easily(1)
	CAM(1)	more efficient, saves on wastage & labour/reduces costs
f)	Electronic tagging (1)	easily locate offenders (1)
	Databases (1)	allow easy search and retrieval of data/help solve crimes faster (1)

A **benefit** must be given for the second mark.