Mark scheme
June 2001

GCE

Information and Communication Technology

Unit ICT1

Unit 1: Information: Nature, Role and Context

1. Explain what is meant by "Information and Communications Technology". *3 marks*

Any suitable definition that covers
- Input/collection/gathering/ (1)
- Processing/manipulation/changing/sort/organise(1)
- Storage(1)
- Transfer/pass on/send/exchange/shared(1)
- Output/accessing/produced/find/find out(1)

1 mark for each to maximum of 3 marks

ALSO ACCEPT:
- Use of computers to do…..certain tasks etc(1)
- Use of electronic/computer technologies(1)
- Human interaction with a computer(1)
- Technology = hardware/examples of hardware(1); Software(1) NOT Trade names
- Application of science/computers to everyday tasks(1)

Communicate/communications only if example given of how e.g. using the Internet.

NOT using new technology to make life easier/better standard of living (Does not infer information)

2. The expression "garbage in, garbage out", or "GIGO ", is often used in connection with information processing systems.

   Explain, using an example, what is meant by this expression. *4 marks*

Sample answer might be "the information output from the system will be wrong(1) if the data that is entered into the system is incorrect(1)

NOT "information going in".

An example would be if the price of a can of baked beans is entered as 24p when it is really 35p (1) then if a customer buys 3 cans of beans the bill will say 72p instead of £1.05.(1)

Looking for key points of incorrect input gives incorrect output.

2 MARKS EXPLANATION - INPUT   OUTPUT
2 MARKS EXAMPLE   - INPUT   OUTPUT

3. **A travel firm arranging package holidays in Spain for the 2001 season uses data obtained from a survey of their customers' favourite holiday resorts in 1997. Explain:**
    a) **why the data from 1997 might not be suitable for use to predict the requirements for 2001;**
    b) **what the effect on the company might be if it used the 1997 data.**   *4 marks*
2 marks for (a) 2 marks for (b)

a) Looking for recognition of data being out of date(1) and reason why (1); data from 1997 too old/out of date(1) peoples tastes change,/hotels alter/ resorts change(1)

b) Looking for recognition of an effect in business terms of using out of date information
    book wrong hotels/arrange wrong holidays(1) lose money/go out of business(1)
    unable to predict room/aircraft utilisation(1) resulting in over/underbooking(1)
    price holidays wrongly due to wrong assessment of demand(1) and so lose money(1)
    fail to recognise needs of market(1) and so lose business(1)

    1 MARK FOR EFFECT   1 MARK FOR RESULT ON BUSINESS
    NOT ANYTHING TO DO WITH DP ACT

4. **Mrs Jones has bought a book on gardening from a book company on the World Wide Web. She has now started to receive e-mails about garden furniture, and plant catalogues through the post.**
    a) **Explain why Mrs Jones has started to receive the e-mails and the catalogues.**   *2 marks*
    b) **Some people are worried about ordering goods using credit cards over the Internet.**
    Explain what can be done by the book company to prevent credit card details being misused.
        2 marks

a) Looking for the principle that Mrs Jones has given her details to the book company when ordering over the Internet and that the details have been passed/sold by them to other companies who are now targetting Mrs Jones.

    1 mark for has given her details to the company and 1 mark for them having passed the details on to other companies.

    Also give credit if candidate describes the fact that Mrs Jones must not have read the details on the on line form correctly, or at all(1) and has thus allowed her details to be passed on(1)

    Or that the company has not complied with the 1998 DP Act (1) and has passed on details without permission. (1)

    NOT THAT THE COMPANY KNOW THAT SHE LIKES GARDENING

b) Encryption/encoding of credit card details(1) to ensure data cannot be understood if intercepted(1)
Give credit for mentioning SSL (**S**ecure **S**ockets **L**ayer) or S-HTTP(Secure HTTP) both of which are encryption protocols. Only part of stored credit card details shown(1) so whole card details only in encrypted form(1)

Site should ensure checking of physical address against credit card(1) or with bank (1) to ensure correct person using(1)

Book company using firewalls(1) to prevent hackers from gaining credit card details from the companies machine(1)

DO NOT ALLOW JUST TO PREVENT HACKERS – MUST BE THE REASON FOR THE SECOND MARK

- Allocating customers unique IDs/passwords(1) so don't have to enter credit card details every time and thus reduce chance of misuse(1);
- Deleting details once used (1) explanation (1);
- Company staff – code of practice/procedures(1) how this will prevent details being misused(1);
- Call Back procedure – by telephone

MUST SAY REDUCING CHANCE OF MISUSE OR SIMILAR
1 MARK FOR WHAT AND 1 MARK FOR WHY

5. **A supermarket chain operates an automatic ordering system between the stores and a central warehouse.**
    a) **State two advantages for the store of using an automatic system.**   *2 marks*
    b) **Explain one advantage for the supermarket's customers of the store using an automatic stock control system.**   *2 marks*

a) One mark for each point maximum 2 marks
- speed of ordering(1)
- store can be kept fully stocked/no overstocking(1)
- reduction in staff time spent on stock ordering(1) / staff costs – less staff(1)
- automatic ordering means lack of human error/fraud(1)
- increased accuracy/ know exactly what stock they have at any one time(1)

DO NOT ALLOW
- it is very quick
- it is easier to use
- preventing being left with unsold stock

WE ARE NOT TALKING ABOUT ROBOTICS HERE
BUT other advantages acceptable e.g. stats produced – executive decisions can be made

b) Customer finds goods they require in stock(1) if levels maintained automatically(1) customer finds prices may be lower(1) if less staff used/less wastage in stock/less space needed for stock(1)

1 mark for stating advantage, second mark for explaining. NB stating two advantages with only one explanation 1 mark only.

6. (a) Browsers and search engines are two items that are associated with the use of the Internet. Explain what is meant by:

i. a browser; *2 marks*
ii. a search engine. *2 marks*

(b) In order to use the Internet, the owner of a PC at home normally needs to register with an Internet Service Provider (ISP). State two services, in addition to e-mail, that an ISP could provide. *2 marks*

(c) Changes in technology now mean that it is no longer necessary to have a PC to be able to use some Internet services. Give two devices that can be used instead. *2 marks*

(d) Explain why it is possible to send e-mail successfully to someone who has not got his or her PC switched on. *2 marks*

a) All separate marks

i. A browser 2 marks

Used to display/view/download web pages (1) in a human understandable form (1)
Display HTML(1) in viewable form(1)
Enables user (1) to navigate the web/move between pages of HTML/going backwards and forwards(1)
Software/application program(1) enabling viewing(1)

NOT SEARCH AND DEFINITELY NOT SURF AND NOT TRADE NAMES
NOT JUST ACCESS THE INTERNET NOT BROWSING

ii **a search engine** 2 marks

Used to find specific pieces of information/web pages/websites/URL's(1) using key words (1)
Piece of software/application program(1) used to find sites/words/topics(1)

b)

- Provides address (1)
- Web space/editor to create web pages(1)
- Chat rooms/newsgroups/bulletin boards(1)
- Search Engines(1)
- News/provide information(1)
- Goods for sale, auctions, shopping (1)
- Virus protection/scanning(1)
- "Net nanny" type software(1)
- Technical help(1)
- Customisation of internet interface(1)
- SMS/Text messaging(1)

2 marks

And others 1 mark each
CHEAP DEALS – FREEPHONE NUMBERS ETC must give e.gs

NOT PIECES OF SOFTWARE SUCH AS COMMUNICATIONS SOFTWARE/BROWSERS AS THESE ARE NOT SERVICES

c) WAP phones(1) MUST BE WAP PHONES NOT NEW MOBILE PHONES

E-mail telephones/new BT telephone boxes, kiosks/BT Easycom (1)
Televisions with digital capabilities(1) i.e. Digital TV or normal TV plus box(on digital for e.g.)
must have digital not just SKY

2 marks

NOTE PADS/PALM TOPS AND PDAs (PERSONAL DIGITAL ASSISTANTS) Playstation 2
MUST HAVE MORE THAN JUST TELEVISIONS
DON'T ALLOW LAPTOPS - CLASSING THESE AS PCs

d) ISP stores messages on server (1) until addressee collects mail (1) 2 marks

7 **(a) Describe what is meant by a software licensing agreement.** *2 marks*
(b) Mr Patel has a single user software licensing agreement for a word processing package, which specifies that there must only be one copy in use at any one time. Would he be guilty of breaking the agreement if he installed the package on his laptop PC, as well as on his stand-alone PC at work? Explain your answer. *2 marks*
(c) A college network has a server and 20 stations. What type of licensing agreement would be suitable for a word processing package that may be used at the same time on all 20 stations? *2 marks*
(d) Breaking a licensing agreement is one type of offence that a computer user can commit. Some other offences are covered by the Computer Misuse Act. Explain, using examples, level 1, 2 and 3 offences under the Computer Misuse Act. *9 marks*

a) An agreement on how a piece of software may be used/legal document/contract (1). Agreement is between user and producer of software. (1)

REMEMBER THAT NOT ALL SOFTWARE IS SOLD
IF ONLY MENTION USER OR PRODUCER THEN 1 MARK ONLY

b) 2 marks or 0 marks.
No. They are not committing an offence provided they only use the PC or the laptop at any one time (2).
Yes if they let the laptop and PC be used at the same time(2)

c) A multi-user licence agreement/site licence/network licence (1) for a minimum of 20 copies/number specified (1) of the software to be used at any one time

IF TWENTY SEPARATE LICENCES 1 MARK ONLY

d) Level 1 – **unauthorised access (1)** to material **without any intent (1)** to do anything other than just gain access. An example would be the student who gains access to the administrative side of a college network or to another student's user area. The person who tries to get into a system just for the hell of it. (1).
Here user is not doing anything as such.

Level 2 – **unauthorised access (1) with intent to commit (1)** or to facilitate commission of further offences. For example accessing bank records with the intent of committing fraud. Accessing personal details with the intent of committing blackmail. (1)
Here user is using the data itself for other purposes.

Level 3 – unauthorised(1) modification (1) of computer material. The code or data is actually changed rather than simply viewed and used. For example changing the balance in a bank account, altering someone's credit status, changing an examination mark./ Introduction of viruses (1).
Here user changes data/software in some way.
Viruses come under this level

8. **An advertisement for an IT support worker to join the PC support team in a company specifies that the applicant must be, "willing to work flexible hours, be able to communicate well orally, have good written skills and get on well with a wide variety of people".**
Explain, giving examples, why <u>each</u> of these characteristics is important for someone working in such a role. *8 marks*

1 mark for reason for each personal quality listed and one mark for a sensible example. NB Question deliberately states **support** role but leaves this fairly open to interpretation

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

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

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

Get on well with a wide variety of people -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).
Also acceptable be able to deal with wide range of clients(1) plus example(1)

Max 8

THE EXAMPLES SHOULD BE RELEVANT TO THE USER SUPPORT ROLE TO GET 2 MARKS

9. **Poorly designed computer workstations can lead to health problems. State three features of a well designed workstation, and for each one state the health hazard that will be prevented.** *6 marks*

One mark for the feature and one mark for the health hazard designed to prevent
- Tiltable/adjustable screen(1) prevent neck strain(1)
- Sufficient desk space to rest hands(1) - RSI(1)
- Provision of wrist support/ergonomic keyboards(1) - RSI(1)
- Ergonomic/Five point chair/adjustable/provides back support(1) prevent backache(1)

  NOT COMFORTABLE

- Footrests(1) preventing backache(1)
- High quality screen to reduce flicker/anti-glare filters/screens/coating on screen or dull desk surface(1) preventing eyestrain(1)
- Adequate work space/well positioned items(1) preventing …(1) Etc

NOT WIRES
     VENTILATION
     LIGHTING UNLESS MADE RELEVANT
OR OTHER GENERAL OFFICE FEATURES

NOTE QUESTION SAYS WORKSTATION NOT OFFICE DESIGN

10(a) State why an organisation must apply for entry onto the Data Protection Register.   *1 mark*
(b) State three items of information that must be provided by the data user about the data that is to be stored.   *3 marks*

a) Legal requirement/Data Protection Act requirement   1 mark

b) For each purpose data is to be stored:
- Description of purpose(s) data to be stored for (1)
- Data to be stored (classes) (1)
- Who will have access to the data (recipients) (1)
- Any organisations to whom data will be passed on (transfers) (1)
- Sources of data/how the data has been acquired(1)

To maximum of 3 marks

11. Explain, with reasons, two levels of access that could be given to different categories of users of an on-line stock control system.   *4 marks*

Examples
- Stock manager–read/write access (1)- ability to add delete and amend records of stock e.g. add a new product, delete a product out of stock, change prices (1).
- Sales staff – read/write access (1) need to be able to see details about stock and to change data as sales are made(1)
- Store manager – read/view only access(1) - needs to be able to view(read) data but not change it(1)

Any 2 × 2 marks 2nd mark dependant on first.

This question is about the types of access that can be given not how it is controlled and so nothing on passwords, etc gains credit.

Allow Full Access rights: 1 mark terms plus 1 for explanation
- Read
- Read/Write
- Amend
- Delete
- Add/Delete/Write/Append

12. A firm of engineers in the United Kingdom has been given the task of designing a new building in Australia. As one of the methods of communicating with the clients it has been suggested that the company uses videoconferencing
   a) Explain what is meant by the term videoconferencing. *4 marks*
   b) Give two advantages and two disadvantages to a company of using this approach as compared with non-ICT methods. *4 marks*

   a) Videoconferencing is the action of individuals or groups of people at different locations (1) having an interactive (1) discussion/real time; enabled by the use of telecommunications (1); video link/equipment needed as **video** conferencing/idea of real time(1)

   One mark for each point to max of 4

   b) Advantages
   - Saves cost of travel
   - Saves time taken to travel
   - Useful when quick response needed
   - Physical items can be shown/discussed e.g. models of buildings/video clips of site etc
   - Can see expressions on faces which means can gauge reactions

   Disadvantages
   - Quality of images can be poor/time delay
   - Investment in set up can be high
   - Training in how to use needed
   - Hardware/system failure
   - Loss of social interaction
   - Control of meeting is more difficult

   NB Time differences not acceptable as applies to non ICT methods as well as ICT methods!

   NOT TIME OR COST if not explained

TOTAL MARKS FOR PAPER = 74