UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

MARK SCHEME for the November 2004 question paper

0418 INFORMATION TECHNOLOGY

0418/02 Paper 2 (Written), maximum raw mark 80

This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which Examiners were initially instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the *Report on the Examination*.

- CIE will not enter into discussion or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the November 2004 question papers for most IGCSE and GCE Advanced Level syllabuses.

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Grade thresholds taken for Syllabus 0418 (Information Technology) in the November 2004 examination.

	maximum mark available	minimum mark required for grade:			
		A	C	E	F
Component 2	80	48	32	22	18

The threshold (minimum mark) for B is set halfway between those for Grades A and C.
The threshold (minimum mark) for D is set halfway between those for Grades C and E.
The threshold (minimum mark) for G is set as many marks below the F threshold as the E threshold is above it.
Grade A* does not exist at the level of an individual component.

November 2004

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 80

SYLLABUS/COMPONENT: 0418/02

INFORMATION STUDIES
Paper 2 (Written Paper)

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1 Desk jet printer **1**
Laser printer **1**

2 Microphone **1**
Modem **1**

3 A data logger **1**
Magnetic stripe reader **1**
A simulation **1**
OCR **1**

4 Patients' medication can be controlled automatically **1**
Doctors can find patients' records more quickly **1**

5 (a) Direct changeover **1**
Parallel running **1**

(b) Three from: It will be easier/faster to find car details
It will be easier/faster to find potential buyer details
It will be easier/faster to match potential buyer requirements with stock
Standard letters can be used to notify potential buyers of new stock
Easier/faster to sort records into order
Less storage space required
Easier/faster to find records
Files/records can be accessed by more than one person at the same time **3**

(c) Registration number **1**

(d) (i) Number of doors **1**
Maximum speed **1**

(ii) Two from: Colour
Number of doors
Model **2**

6 3D option. **1**
Automatic dimensioning **1**

7 Five from:

Input - Times the system should operate
Temperature from sensor
Temperature from user via keypad/required temperature

Processing - Sensor temperature is compared with
Programmed value
If higher heater switched off by microprocessor
If lower heater switched on by microprocessor

Output - heater switched on or off

5

8 Producing electricity bills **1**
Reading data from bank cheques **1**

9 (a) Three from: Automatic recalculation
Can handle formulae
Can produce graphs
Have inbuilt worksheet functions
Can be used to make predictions
Can see most (if not all) values and observe changes as they happen **3**

(b) (i) Any plausible examples which make use of whatif scenarios e.g.

Designing structures of buildings/architects designs
Flight simulation
Car driving simulation
Simulating chemical reactions **3**

(ii) Two from: Real thing may be:

Too dangerous
Too large a time scale required
Wasteful of materials
Takes much longer to build the real thing **2**

10 (a) Bar code reader/keyboard/electronic weigh scales **1**

(b) Two from: Check digit calculated
Compared with
Check digit entered
Existency check performed
Number entered is compared with
List of numbers on computer database/system **2**

(c) Five from: Every time a product is bought number in stock reduces by 1
Number in stock is compared with
Re-order level
If less then needs re-ordering
Kollege Corn Flakes needs re-ordering
Read off re-order quantity
Read off up supplier code
Use suppliers database
Lookup supplier code
Read off suppliers name, address
Print off re-order request
Print off address label **5**

11 (a) Three from: Message is:

Transmitted to the senders ISP/central host computer
Stored on a central host computer
Is transmitted to intermediate computers
Stored on the intermediate computers
Received by the addressee's host computer/ISP
The addressee logs in to a local computer and receives the mail **3**

(b) **Advantages:**

Two from: Messages can be sent instantaneously by e-mail/delivery times are quicker
You do not have to leave your house to send e-mail
Replies to e-mails can be quicker
Sending e-mail can be cheaper/the cost of a phone call is less than the cost of a stamp **2**

Disadvantages:

Two from: Signatures/important documents cannot be sent by e-mail
Hacking
You have to have a computer/e-mail account/Internet
You have to have a modem
You have to have an ISP
You cannot attach physical objects **2**

12 (a) User id/account no./customer no. **1**
Password **1**

(b) Three from: Transfer money between accounts
Pay bills
Order a cheque book
Look at account transactions for a given period
Request a change of pin/password
Amend/create standing orders/direct debits
Print statements
Change personal details **3**

(c) Withdraw cash/pay in cash **1**

(d) **Advantages:**

Two from: Do not have to waste time travelling long distances to banks
Do not have to spend money on travelling expenses travelling long distances to banks
No embarrassment of having to ask for loans face to face
Can bank when banks are closed
Do not have to waste time waiting for a response to telephone banking **2**

Disadvantages:

Two from: Lose personal touch
Less opportunity for socialising with friends/neighbours
More expensive phone bills
Lack of exercise
Hackers can access personal details and transfer money to their account
You have to have a computer/Internet access
Unable to withdraw cash **2**

13 (a)	One from:	Medical diagnosis Car fault diagnosis Prospecting Tax Chess games	**1**
(b)	Four from:	Gathering data from experts Designing knowledge base Creating a knowledge base Creating a structure to relate each item in the database /knowledge base Creating an interrogation technique to get at the data Designing a method of displaying the results Inference engine Design/create rule base	**4**
14 (a)	Two from:	Loss of power to the robot Fault in the software/wrongly programmed Hardware breaks down Missing components/components in wrong place	**2**
(b)	Two from:	Safety reasons/hazards Cheaper than a human over a long period/will not need paying Will not take breaks/can operate continuously Will work at a consistent rate Will not go on strike Can lift heavy loads	**2**
15 (a)	Three from:	Interview Questionnaires Observing work practices Examining existing documents	**3**
(b)	Three from:	Information shall be obtained fairly Information shall be obtained lawfully Data must be kept secure (against unauthorised access and loss) Data held only for one or more specified and lawful purpose Data shall not be used for anything other than that purpose Data shall not be disclosed for anything other than that purpose Data held for any purpose shall be adequate in relation to that purpose Data held for any purpose shall be relevant in relation to that purpose Data held for any purpose shall be not excessive in relation to that purpose Data shall be accurate Data shall be kept up to date Data shall not be kept for longer than necessary An individual shall be entitled to be informed by any data user whether he holds personal data of which that individual is the subject To have access to any such data held by a data user Where appropriate to have such data corrected or erased	**3**

(c) Three from: Database structure/key fields/indexing
User interface
Output layouts/reports
Processing requirements
Filters/queries
Validation routines
Screen layouts **3**