

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

MARK SCHEME for the May/June 2008 question paper

0418 INFORMATION TECHNOLOGY

0418/01

Paper 1 (Written), maximum raw mark 120

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began.

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.

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Page 2	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2008	0418	01

- 1 **A** Trackerball (1)
 B Web cam (1)
 C Magnetic stripe reader (1)
 D Joystick (1)
 E DVD drive (1) [5]
- 2 Buzzer (1)
 Motor (1) [2]
- 3 F (1)
 T (1)
 F (1)
 T (1)
 F (1) [5]
- 4 **(a)** a keyboard (1)
 (b) a school register (1)
 (c) a floppy disc (1)
 (d) a graph plotter (1) [4]
- 5 **Three** from:
 Giving software copies to others without the owner's permission
 Making a copy of a disk without the owner's permission
 Selling copies of the software without the owner's permission
 Using the software on a network when the licence does not allow it
 Renting out the software on a network when the licence does not allow it
 Renting out the software/sharing software with others without the permission of the owner
 Using the copyright name on other software
 Amending software/using parts of code in own programs without permission
 Buying pirated software [3]

Page 3	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2008	0418	01

6	Penup		
	Forward	20	
	Right	90	Right 90 and Pendown interchangeable
	<u>Pendown</u>		
	Forward	75	
	Right	90	
	Forward	80	
	<u>Penup</u>		
	Forward	85	
	Pendown		
	Forward	55	
	<u>Right</u>	90	
	Forward	50	
	Penup		
	<u>Forward</u>	25	
	Pendown		Pendown and Right 90 interchangeable
	Right	90	
	Forward	75	

1 mark for each group of 3/4 statements [5]

- 7 (a) Three** from:
ROM cannot be changed/permanent/RAM is temporary memory
RAM can be read from and written to
RAM is volatile/ROM is non-volatile
ROM is read only memory and RAM is random access memory [3]
- (b)** ROM stores BIOS/program cycles in a washing machine/program instructions in games (1)
RAM holds the data currently being used by the user (1) [2]

- 8** Problem – electrocution
Prevention – RCB installed/cable insulation
Problem – trailing cables
Prevention – create ducts/cover cables with carpets/description of how length of cabling could be reduced e.g. WiFi
Problem – heavy equipment falling
Prevention – large/sturdy tables
Problem – fire
Prevention – appropriate type of extinguisher/regular maintenance of equipment/ventilation
- 1 mark for each problem (2 max)
1 mark for each prevention (2 max) [4]

Page 4	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2008	0418	01

9 (a) Destination/country/resort name (1)

Features such as:

Hotel name/name of campsite/length of stay/Resort features/type of room/star rating/name of nearest airport to resort/name of departure airport(s)/length of flight/places of interest to visit/type of holiday/dates of availability/reference number of holiday/price of holiday/picture of resort or hotel

(3 marks for 5 items, 2 for 4 items, 1 for 3 items, else 0)

Information fills the page AND is clearly a screen form (1) [5]

(b) Two from:

Data is entered twice

Data versions are compared by computer

If versions are different, typist is alerted (2)

Two from:

Data on screen/in system

Is visually compared with

that on data capture form (2)

[4]

(c) Three from:

Validation is checking data entered

Is acceptable/reasonable/within a given range

Verification is checking versions of data have been entered identically/is checking data has been copied correctly

From one medium to another (3)

Two from:

Range check

Check digit

Control total

Hash total

Invalid character check/type check

Picture/format check/input mask

Presence check

Existency check

Length check (2)

[5]

Page 5	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2008	0418	01

(d) Six from:

- Parallel running/implementation
- Information is not lost/always a second copy
- Have to pay two sets of workers
- Phased implementation
- Still have most of system if things go wrong
- No expense of running two systems together
- Lose some data if things go wrong
- Direct implementation/changeover
- Time is not lost
- Do not have expense of running two systems together
- If things go wrong lose all data
- Pilot running
- Pilot/phased/parallel are slow methods of implementation (6)

+1 for reasoned conclusion

[7]

(e) Technical:

Purpose – (help programmers/analysts) make improvements to system/repair system/maintain system (1)

Two from:

- Program listing
- Flowchart/algorithm
- List of variables
- File structure
- Purpose of the system
- Purpose of the program
- Screen layouts
- Print formats
- Hardware requirements
- Software requirements
- Sample runs
- Known bugs
- Error messages
- Validation routines (2)

User:

Purpose – help users to learn how to use system (1)

Two from:

- How to load software/run software
- How to save a file
- How to search
- How to sort
- How to print
- How to add records
- How to delete/edit records
- Troubleshooting guide
- Screen layouts (only if not mentioned in technical documentation)
- Error messages (only if not mentioned in technical documentation)
- Print formats (only if not mentioned in technical documentation)
- Hardware requirements (only if not mentioned in technical documentation)
- Software requirements (only if not mentioned in technical documentation)
- Sample runs (only if not mentioned in technical documentation)
- Tutorials (2)

[6]

Page 6	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2008	0418	01

- 10 Three** from:
 Increased unemployment
 Increased employment (with reasons)
 Have had to retrain
 Less noise/more pleasant environment
 Safer environment
 Less heavy lifting/healthier work
 Workers can be deskilled [3]
- 11 (a) Four** from:
 Doctors interviewed for requirements
 Data is collected from experts
 Knowledge base is designed/created
 Rule base is designed/created
 Inference engine is designed/created
 Input Screen is designed/created
 Output format is designed/created (4)
- Ailments with known diagnoses are used to test the system and results evaluated/does new system match original system specification/interviewing doctors about effectiveness of system (1) [5]
- (b) Two** from:
 (Car engine) fault diagnosis
 Prospecting
 Tax
 Careers
 Chess games
 Animal/plant classification [2]
- 12 (a) Three** from:
 Temperature
 Pressure
 Moisture
 Humidity
 Light
 Motion [3]
- (b)** Sensor measures analogue data (1)
 Computer works with digital data (1) [2]
- (c) Three** from:
 Computer can take readings during holidays/readings can be taken any time of day or night/24/7/do not take breaks
 Computer readings are more accurate
 Readings can be taken more frequently
 Can produce graphs/results more quickly
 Computer doesn't forget to take readings [3]

Page 7	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2008	0418	01

- (d) Five from:**
 Save spreadsheet in suitable format
 Create graphs
 Load/open word processing software
 Insert spreadsheet/import spreadsheet/copy and paste spreadsheet/embed spreadsheet into document
 Insert/copy and paste graphs
 Type in/insert text
 Insert/import images
 Format images/charts
 Format reports/text [5]

- 13** Producing utility bills (1)
 Inputting details of new stock into a library's database (1)
 Reading data from bank cheques (1) [3]

- 14 (a) (i)** Ring (1)
(ii) Star (1) [2]

- (b) Advantages**
Two from:
 Share hardware
 Share software
 Share data/information
 (Electronic) communication
 Users can be more effectively controlled/monitored (2)
- Disadvantages**
Two from:
 Work can be misused more easily
 Viruses more easily spread
 Printer queues
 Slower access to Internet
 If server crashes all computers are affected
 Increased security risk (2) [4]

- 15 (a) 5** [1]

- (b) 4** [1]

- (c) 0027200190653 5** [1]

- (d) Number in stock** [1]

- (e) Text/alphanumeric** [1]

Page 8	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2008	0418	01

(f) Bar code [1]

(g) **Four** from:

- Bar code is entered
- The bar code field in the data file is read
- Record by record
- Until a match is found with the bar code entered
- The corresponding number in stock is read
- One is subtracted from this number
- Written back to file
- No. in stock checked with re-order quantity
 - If \leq re-order quantity
 - then re-ordered/flagged

[4]

(h) **Five** from:

- Card details checked for validity
- PIN is entered
- PIN is read from chip
- Numbers compared
- If identical transaction is authorised
- If not identical transaction refused
- Customer bank contacted by computer/automatically
- Check if enough funds in account
- If card invalid/insufficient funds then transaction is rejected
- If card valid and sufficient funds then transaction is authorised
- Money deducted from customer account
- Money credited to supermarket account

[5]

(i) **Two** from:

- User name/account number
- Password/PIN

[2]

(j) **Two** from:

- Key needed to encrypt
- Data is jumbled up/encoded
- Key must be known to decrypt it
- Prevents people from understanding data

[3]

Page 9	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2008	0418	01

(k) Eight from:

Customer – advantages

- Less danger of mugging
- Don't have to waste time travelling (long distances to shops)
- Elderly/Disabled people don't have to travel to shop/leave home
- Don't have to spend money on travelling expenses travelling (long distances to shops)
- Greater choice of goods
- Can shop when shops are closed
- Easier to search and find what you're looking for

Customer – disadvantages

- Lack of socialising/social contacts
- Customers must have a computer/Internet access/(basic) computer skills
- Hackers may intercept data and defraud customer
- Deprived of personal touch
- Phone bills can increase
- Without broadband other family members cannot use the phone
- Cannot see/feel goods in reality
- More vulnerable to phishing
- Goods sometimes don't arrive/substitute goods may be sent/take longer to arrive
- Must have a credit card
- Shipping charges

Shop – advantages

- Fewer staff needed/less spent on wages
- Fewer shops needed/less spent on rates/rent
- Less actual cash handled/fewer robberies
- Less money spent on security staff
- Potentially larger customer base

Shop – disadvantages

- Initial outlay on computers is expensive
- Need to retrain staff
- Less customer loyalty/loss of customers due to lack of personal touch
- Costs of system maintenance
- Greater costs due to more delivery staff

[8]

Full marks can only be awarded if at least 1 mark from each section is achieved.
Max 5 from any one section.