UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2007 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.

• CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the October/November 2007 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Page 2	Mark Scheme	Syllabus	Paper
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Question Number	Answer	Part mark
1	A Touchscreen B Video camera C Midi interface D Plotter E Printer	1 each
2	CD ROM drive Memory stick	1
3	CAD a bank worker	1
	MICR an examination paper marker	1
	OMR a shop worker	1
	Touch screen a payroll office worker	1
	Batch processing system an aircraft designer	1
4 (a)		1
(b)		1
(c)		1 for horizontal line 1 for correct verticals
5	Penup Forward 20 Pendown	1
	Right 90 Forward 100 Right 90 Pendown and Right 90	1
	Forward 230 are interchangeable Right 90 Forward 75	1
	Penup Forward 25 Pendown	1
	Right 90 Forward 80 (Right 90)	1

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-			
6		True	1
		False	1
		True	1
		False	1
		False	1
7	(a)	A DVD	1
	(b)	A floppy disc	1
	(c)	A laser printer	1
	(d)	A trackerball	1
8	(a)	Three from:	
		Data capture forms	
		Report layouts/output format	
		Validation routines	
		Queries	
		Test data/routines	
		Macro	
		Specifying hardware and software requirements	3
	(b)	five max from:	_
		Staff payroll number or equivalent	1
		Personal data (name, address, phone no., fax no., email address, work	
		phone number, next of kin, date of birth, gender, qualifications, photo etc.)	2
		- 2 marks for 4 items, 1 for 3, else 0	2
		Job description	1
		Appropriate spacing for each field Information fills the page and is clearly a computer output screen	1
		information fills the page and is clearly a computer output screen	•
	(c)	Description of abnormal data i.e. data that is outside the range of acceptability	1
		Description of normal data i.e. acceptable data/valid data	1
		Description of extreme data i.e. on the edge of acceptability	1
	(d)	Five 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 user interface/method of displaying the results/method of	
		inputting data/input screen/output screen Design/create Inference engine	
		Design/create merence engine Design/create rule base	
		Testing the system	5
		resumg the system	3
	(e)	Two from:	
		Car fault diagnosis	
		Mineral/oil prospecting	
		Tax Chasa gamas	
		Chess games Plant/animal/rock identification	2
		i ianivaniiniai/100k iuchundauon	_
		I	I .

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	(f)	Three from:	
	` ,	Pulse/heart rate	
		Temperature	
		Blood pressure	
		Glucose/sugar level	
		Rate of respiration	
		Oxygen level in blood	3
		, , ,	
	(g)	Analogue to digital converter	1
		Sensors measure analogue quantities	1
		Computers work in digital	1
	(h)	Three from:	
		Will not take breaks/can operate continuously (not constantly)	
		Fewer mistakes/greater accuracy	
		More than one variable can be measured at any one time	
		Readings can be taken more frequently	
		Results are analysed automatically/faster to react/charts are produced	
		automatically	
		More reliable/readings taken at regular intervals	
		Nurses are free to do other tasks	
		Reduces chance of nurses being exposed to contagious diseases	3
9	(a)	C5	1
	(b)	Any in range A1:A6, B1:B6, C1:G1, B8, E8,F8	1
		F0 P0	
	(c)	E2-D2	1
	(d)	SUM(C2:C6) or C2+C3+C4+C5+C6	1
	(e)	Copy cell C8	1
	(0)	Paste into G8	i
		or	or
		Click on cell G8	1
		Double click on Autosum/click on Autosum and press enter	1
		or	or
		Click on cell C8	1
		Ctrl+move to G8	i
			•
	(f)	Two from:	
		Designing structures of buildings/architects designs	
		Flight simulation/car driving simulation	
		Simulating chemical reactions	
		Simulating nuclear reactions	
		Population growth	
		Queuing	2

Page 5	Mark Scheme	Syllabus	Paper
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ii) Two	Vebcams/small video cameras ficrophones speakers flodem	2
ii) Two	dicrophones Epeakers Modem from: In a spect of connecting equipment together/what each component does imployees are connected on-line/may need to access the Internet/WAN or work	2
ii) Two	Indeem Indeem In from: In y aspect of connecting equipment together/what each component does imployees are connected on-line/may need to access the Internet/WAN or work	2
ii) Two A e	from: Any aspect of connecting equipment together/what each component does imployees are connected on-line/may need to access the Internet/WAN o work	2
ii) Two A e to	from: any aspect of connecting equipment together/what each component does imployees are connected on-line/may need to access the Internet/WAN owork	
A e to	any aspect of connecting equipment together/what each component does mployees are connected on-line/may need to access the Internet/WAN work	
e to	mployees are connected on-line/may need to access the Internet/WAN o work	
to	work	
Ir	mages of the employees appear on the screen in real time	
	nages of the employees appear on the screen in real time	
S	oftware is needed in each computer to operate the conference	
E	imployees can be heard by all the other employees in the conference	2
(b) Two from		
	Different time zones make it difficult to have a video conference between	
	eople in different countries	
	start up costs can be high/equipment can be expensive to buy	
	Communication link can go down/reception can be poor	
	quipment can fail	
	Can seem impersonal	2
F	rictures and sound can be out of sync	2
11 Three	from:	
l Ir	nternet - INTERnational NETwork	
ls	s a Wide Area Network (WAN)	
	Can access it from anywhere	
	Greater amount of information available	
U	Inlimited access	
l Ir	ntranet - INTernal Restricted Access NETwork	
U	Isually a Local Area Network (LAN)	
P	assword controlled pages	
В	Sehind a firewall	
	Can set up specific information pages on Intranet systems	
	nformation within the school is easily accessible by all users	
	Can limit the places where users can go to study	
	lo wasted time looking through millions of resources	_
Ir	ntranet is better protected for use of emails/from viruses/from hackers	3
12 (a) Two fro	om·	
\ - /	dicrowaves	
_	Ovens	
	Vashing machines	
	Dish washers	
C	Or any reasonable labour saving device	2
(b) Four fr		
	ncreased leisure time/free time/more time to do other things	
	ncrease in social interaction	
	Can go out whenever they want	
	Inhealthy diet – TV dinners	
	tetter quality meals – easier to prepare exotic dishes	
	art time workers can now work full time	4

Page 6	Mark Scheme	Syllabus	Paper
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13		True	1
13			1
		False	1
		False	1
14		Inputs:	
17		Pressure pads	
		Light sensors	
		temperature sensors	
		•	
		Contact switches/push switch	
		Input keypad	
		Pass number input to keypad	
		Zones selected	
		Sound sensor	
		Infra red sensor/proximity sensor	
		Motion sensor/movement sensor	
		Digital/video camera	
		3 max	
		Processing:	
		Microprocessor continually monitors sensors.	
		If light sensor detects light beam interrupted:	
		If movement sensor activated:	
		If contact switch activated:	
		If pressure sensed by processor is greater than preset value:	
		It temperature sensed by processor is greater than preset value:	
		If sound sensed by processor is greater than preset value:	
		Microprocessor sends signal to output device.	
		4 max	
Ī		Outputs:	
		Alarm light flashes/lights come on	
		Alarm sounds	
		Signal automatically sent to police	
		3 max	
Ī		Must have at least one from each section to gain full marks	6 max
15	(a)	Three from:	
		Looking at other people's data	
		Changing other people's data	
		Deleting other peoples data	
		Spreading data around	3
	(b)	Two from:	
	(10)	Use of usernames/ids	
		Use of passwords	
		Firewalls	
		Physical locks of computers/room	
		Use of biometrics	
		Special access rights for administrator	2
1			

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(c)	Two from:	
(-)	Protects data during transmission phase	
	Results in data which is not understandable	
	Is understandable only to authorised users	
	Need a decryption key/software to decrypt data	2
(d)	Five from:	
	Open/use DTP/word processing package	
	Create frames/boxes	
	Take photo using camera	
	Upload from camera/load from CD ROM/download from Internet/scan	
	photo	
	Save the picture	
	Load magazine document Import/copy and paste/insert into document	
	Position the picture/resize picture/editing picture	
	Type text/import text files	5
	Type text mee	
(e)	Three from:	
	Sound plus example	
	Video/animation	
	Links to other websites	
	Hot spots Buttons for navigation/moving around the site	
	Hit counters	3
	The odd hold	
(f)	Three from:	
	Website can be hacked into and modified/viruses can be introduced	
	Can be difficult to read/navigate	
	Have to have a computer/electricity	
	Is not portable Have to have a modem/Internet/router	
	Can accidentally go to undesirable sites	
	Cost of maintaining website	
	Technical knowledge required to maintain website	3
(g)	Six from:	
(9)	Advantages-	
	Information is up to date	
	Easier to produce neatly presented work	
	Internet has vast amounts of information	
	Speed of search only if referring to use of search engine	
	Disadvantages-	
	Danger of accessing doubtful websites.	
	Can take long time to find required information	
	Can access biased websites	
	Can access inaccurate websites	
	Lack of expertise leads to inefficient searching Can get easily distracted	
	Can get easily distracted	
	+ reasoned conclusion	
	Must be at least one of each (advantage + disadvantage) to gain full marks	6

Page 8	Mark Scheme	Syllabus	Paper
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16 (a)	Four from: Departure airport typed in Arrival airport/destination/country typed in Date of departure typed in Duration of holiday typed in Computer database searches for matching departure airport If match found Computer database searches for matching arrival airport If flight on correct date found Search if seats/tickets available If so marks seat as booked Reduces number of seats/tickets available by one Prints flight details	4
(b)	Three from: Collection of data Over a period of time Data is processed all at once Usually at quiet processor times Double booking could occur People would have to wait to see if their booking was made Cannot change options if no flights available	3