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General Certificate of Secondary Education 2010

Information and Communication Technology

Full Course

Paper 2 Higher Tier



[G5804]

THURSDAY 24 JUNE, MORNING

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

Write your answers in the spaces provided in this question paper.

Complete in blue or black ink only. Do not write in pencil or with a gel pen. Answer all twelve questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 100, including a maximum of 5 marks for quality of written communication.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

For Examiner's use only				
Question Number	Marks			
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
QWC				

Total	
Marks	

6273 **Examiner Number**

(jun10G5804)

2 Leisa wants to buy a digital photo frame but needs help with some of the 1 **Examiner Only** technical description. 320 × 234 Resolution Stand for landscape or portrait mode Single image or slideshow mode **128 MB ROM** SD memory card expansion slot Wireless connectivity © PC World/DSGI PLC (a) Explain the term **resolution** and say why it is important when displaying graphic images. (b) Draw two diagrams in the space below to show what is meant by landscape and portrait modes.

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[1]

	Storage Device	Volatile/Non-volatil	e?
ROI	M Chip		
SD	Memory Card		
		<u> </u>	[2]
	sion slots for memory card	re frame shown above would it is when it already has its own	memory
			543
			[1]
		icture frame having wireless	[1]
conne	TWO advantages of the pi		
conne	TWO advantages of the pi	icture frame having wireless	
conne	TWO advantages of the pi	icture frame having wireless	
1	TWO advantages of the pi	icture frame having wireless	
1	TWO advantages of the pi	icture frame having wireless	
1	TWO advantages of the pi	icture frame having wireless	
1	TWO advantages of the pi	icture frame having wireless	
1	TWO advantages of the pi	icture frame having wireless	

2 Verification and validation help reduce errors when data is being entered into a computer system.

Examiner Only

Marks Remark

(a) Complete the table below by stating which definition is data validation and which is data verification.

Definition	Validation/Verification?
Helps guarantee the accuracy of data being entered into a computer system	
Helps ensure that data being entered into the system is correct	

[2]

(b) Complete the table below stating what type of validation check is being carried out on the Data Items shown. (The first is completed for you.)

Data Item	Error Message	Validation check
2001	Membership number must be between 1 and 2000	Range check
@lexander	Member name must contain text only	
18/05/2000	Date of birth must be entered dd/mm/yy	
PT	Membership type must be 3 characters long	
Field is left blank	Membership number cannot be left blank	

[4]

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(c)	Proof reading is one method of data verification. Describe ONE other method.	Examir Marks	ner Only Remark
	[2]		
		Total Qu	uestion 2
6273		[Tur	n over

3	onli	Eketmaster have stores all over the UK and Ireland in addition to their line store. To prevent double booking of tickets all of their stores are nnected via a WAN (Wide Area Network).	er Only Remark
	AD	OSL and ISDN can be used to provide WAN communication links.	
	(a)	Expand the acronym ISDN .	
		[1]	
	(b)	Give ONE advantage of using an ADSL over a traditional telephone line.	
	(c)	Give ONE disadvantage of using fibre optic cable for connecting stores via a WAN.	
	Coı	mmunication protocols are needed on networks.	
	(d)	What is a communications protocol?	
		[2]	
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(e)	Explain the term encryption.	
(C)	Explain the term eneryption.	
	[2]	
	[2]	
Tiel	ketmaster also use routers on their WAN.	
(f)	Explain the purpose of a router on a network.	
	[2]	
	171	
To all	de the starse a combination of achles and windows connections are used	
to li	de the stores a combination of cables and wireless connections are used ink the company's computers. Give ONE advantage and ONE disadvantage of using wireless	
to li	de the stores a combination of cables and wireless connections are used ink the company's computers.	
to li	de the stores a combination of cables and wireless connections are used ink the company's computers. Give ONE advantage and ONE disadvantage of using wireless	
to li	de the stores a combination of cables and wireless connections are used ink the company's computers. Give ONE advantage and ONE disadvantage of using wireless connections in a LAN.	
to li	de the stores a combination of cables and wireless connections are used ink the company's computers. Give ONE advantage and ONE disadvantage of using wireless connections in a LAN. Advantage	
to li	de the stores a combination of cables and wireless connections are used ink the company's computers. Give ONE advantage and ONE disadvantage of using wireless connections in a LAN.	
to li	de the stores a combination of cables and wireless connections are used ink the company's computers. Give ONE advantage and ONE disadvantage of using wireless connections in a LAN. Advantage	
to li	de the stores a combination of cables and wireless connections are used ink the company's computers. Give ONE advantage and ONE disadvantage of using wireless connections in a LAN. Advantage [1]	
to li	de the stores a combination of cables and wireless connections are used ink the company's computers. Give ONE advantage and ONE disadvantage of using wireless connections in a LAN. Advantage [1] Disadvantage	
to li	de the stores a combination of cables and wireless connections are used ink the company's computers. Give ONE advantage and ONE disadvantage of using wireless connections in a LAN. Advantage [1]	
to li	de the stores a combination of cables and wireless connections are used ink the company's computers. Give ONE advantage and ONE disadvantage of using wireless connections in a LAN. Advantage [1] Disadvantage	

Neil has started a new taxi firm and wants to create a database to keep 4 records of his staff and bookings. He sets up the following tables in a relational database.

Examiner Only

tblDriver

Driver ID	Driver Name	Tel Num	Car Reg	Car capacity
100	N McFall	07766872363	UHY 8798	5
101	J McMasters	07712398762	JTG 9801	8
102	A McAllister	07712366177	CLZ 2290	5
103	R Jones	07799982771	OIL 2065	15

Marks	Remark

tblBooking

Booking ID	Driver ID	Booking Name	Date	Time	Pick-up	Set- down	Num Passengers
200	102	Cowden	01/05/10	12:00	Castlecourt	Green Road	1
201	102	Brown	01/05/10	12:15	City Hall	Lisburn Road	3
201	101	Gribben	01/05/10	12:15	Victoria Sq	Ormeau Road	2
203	102	Ward	02/05/10	12:20	12 Belmont Road	City Centre	2
205	100	Forrester	02/05/10	13:00	Forestside	Belmont Road	1
206	102	Oswald	02/05/10	13:20	Belmont Road	City Centre	1

(a) Identify ONE error Neil has made entering data into the Booking ID field in tblBooking.	
[1]	

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_							[1]
		eason why blBooking.	Neil would	not be a	ble to add the	following	
Booking D	Driver ID	Booking Name	Date	Time	Pick-up	Set- down	Num Passengers
					Castlecourt ollowing ques	stions.	[1]
Use th	e data in t	he tables sh	nown to answ	wer the f		Road stions.	[1]
Use th (d) He (i)	e data in t	he tables sh	nown to answer	wer the f	ollowing ques	Road stions. urn for Neil	[1]
Use the control of th	e data in t	he tables sh	nown to answ	wer the f	ollowing ques	Road stions.	[1]
Use th (d) Ho (i) ield: Bookin tbl Bookin	e data in t	he tables sh	each of the	wer the f	ollowing ques	Road stions. urn for Neil	[1]
Use th (d) Ho (i) eld: Bookin ble: tbl Booort: ow:	e data in t	he tables sh records will	each of the	wer the f	ollowing ques	Road stions. urn for Neil	[1]
Use th (d) He (i) ield: Bookin tbl Bookin	e data in t	he tables sh	each of the	wer the f	ollowing ques	Road stions. urn for Neil	[1]

(09)

ield:	Booking	g ID	Driver I		Booking N		Date		Time		5	
ible:	tbl Boo	oking	tbl Book	ing	tbl Bookin	ng	tbl Booking		tbl Booking			
now: eria:		V	"101"	~		V	"02/05/10"		~			
or:			"103"		1		02/03/10					
	<										21	
										_ [1]		
	(iii)										
	(.)										
Eiz	eld:	Duis seus Managa		Booking Nar		- Data		Time				
		Driver Name :bl Driver		tbl Booking		Date tbl Bookir	ng Query	Time tbl Bool	king Query			
	ort:								, , , , , ,			
I Sha	OIAP			I III						_		
Sho Criter		'A McAllister"		٧		"01/05/11	7"		~	\exists		
Crite	ria: " or:	'A McAllister"		[9	4	"01/05/10			▽			
Crite	vria: " or:	'A McAllister" me ONE		re of a da)"	might		_ [1]		
(e)	Nathe	me ONE results of	each	re of a da query.	tabase	applicat	ion Neil		use to di	isplay		
(e)	Nathe	'A McAllister" me ONE	each	re of a da query.	tabase	applicat	ion Neil		use to di	isplay		
(e)	Nathe	me ONE results of	each	re of a da query.	tabase	applicat	ion Neil		use to di	isplay		
(e)	Nathe	me ONE results of	each	re of a da query.	tabase	applicat	ion Neil		use to di	isplay		
(e)	Nathe	me ONE results of	wing Driver ID	re of a da query.	tabase	applicat	ion Neil		use to di	isplay		
(e)	Nathe	me ONE results of	each wing Driver ID Oriver N. Fel Num	re of a da query.	tabase	applicat	ion Neil		use to di	isplay		
(e)	Nathe	me ONE results of	each wing Driver ID Oriver No	re of a da query.	tabase	applicat	ion Neil		use to di	isplay		
(e)	Na:	me ONE results of	each wing Driver ID Oriver N. Fel Num	re of a da query.	tabase	applicat	ion Neil		use to di	isplay		
(e)	Na:	me ONE results of	each wing Driver ID Oriver No	re of a da query.	tabase	applicat	ion Neil		use to di	isplay		
(e)	Na:	me ONE results of	each wing Driver ID Oriver No	re of a da query.	tabase	applicat	ion Neil		use to di	isplay		

(f) Give TWO ways he could improve the appearance of the	form.	Examiner Only Marks Remark	k
1	[1]		
2	[1]		
Relational databases are designed to help reduce data redund improve data integrity .	·		
(g) (i) Place a tick (✓) beside the correct definition of data the table below.	integrity in		
Definition	Tick (✓)		
Data integrity refers to how correct and relevant the data is			
Data integrity refers to how correct and reliable the data is			
Data integrity refers to how accurate and normal the data is			
Data integrity refers to how accurate and irrelevant the data is			
(ii) Explain what is meant by data redundancy.	[1]		
	[1]		
(iii) Give ONE effect of data redundancy on the database.			
	[1]		
		Total Question	4
6273		[Turn ove	er

	a LAN (Local Area Network).		Marks Re
(a)	Other than communication give an office.	e TWO advantages of using a	LAN in
	1.		
			[1]
	2		
			[1]
			[1]
(b)	The network is backed up daily	_	
	table below that are suitable for	backing up a computer netwo	ork.
	Storage media	Tick (✓)	
	Memory Stick		
	DVD ROM		
	Magnetic Tape		
	External Hard Drive		
	CD ROM		[2]
			[2]
(c)	Other than usernames and passy	_	E other
	method of providing security or	n a network.	
			[1]
(d)	Give TWO differences between	n a LAN and a WAN.	
	1		
	_		Total Questi
	2		

6	Health and safety is important when working on a computer.	Examiner Only Marks Remark
	(a) Finish labelling the diagram below to give advice to someone who will be working for long periods of time on a computer. Two labels have been completed for you.	
	(i) Advice:	
	[1]	
	Reason:	
	[1]	
(ii)	Advice:	
	Reason:[1] Advice: Chair	s should have
	[1] lowe	er back support
	Reason: Help	s to reduce
	back	strain
	(http://www.codinghorror.com/blog/images/computing-ergonomics-monitor-position.png)	
	Electrical sockets in the workplace should not be overloaded to reduce the chance of fire occurring.	
	(b) Give TWO other precautions that should be taken in the workplace to help reduce the likelihood of accidents occurring.	
	1	
	[1]	
	2	Total Question 6
	[1]	
6273		[Turn over

RING TECHNOLOGY FOR LEARNING Ing Services for Schools In below: Ing Outlook Web Access (OWA) Online learning C2k Exchange For C2k Service news and information sharing	,		b browser software allows use ieved from the Internet.	rs to display HTML v	web pages they have	Examiner Only Marks Remark
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rigation bar. [1] RINGTECHNOLOGY FOR LEARNING Ing Services for Schools u below: CE Outlook Web Access (OWA) Online learning C2k Exchange For C2k Service news and information sharing ers Access to other C2k		(a)	Expand the acronym HTML			
RING TECHNOLOGY FOR LEARNING Ing Services for Schools u below: Outlook Web Access (OWA) Online learning C2k Exchange For C2k Service news and information sharing ers Access to other C2k					[1]]
RING TECHNOLOGY FOR LEARNING Ing Services for Schools u below: Outlook Web Access (OWA) Online learning C2k Exchange For C2k Service news and information sharing ers Access to other C2k						
RING TECHNOLOGY FOR LEARNING Ing Services for Schools u below: Outlook Web Access (OWA) Online learning C2k Exchange For C2k Service news and information sharing ers Access to other C2k		(b)	On the web page displayed be	elow circle the naviga	ntion bar. [1	1
RINGTECHNOLOGY FOR LEARNING Ing Services for Schools In below: Ing Outlook Web Access (OWA) Online learning C2k Exchange For C2k Service news and information sharing ers Access to other C2k						
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ne browsing l		(c)	Give ONE advantage of bein	School Folders	Service new information Access to o services	s and sharing ther C2k ©c2kni
			when using a web browser.			
					[1]]
[1]						

(d) Explain the function of the button labelled Home on a web browse	Exami Marks	Ren
	_ [1]	
Web pages can be accessed by typing their URL into the address bar.		
(e) Expand the acronym URL.		
	_ [1]	
	Total Q	uestic

Ele	ctricity, gas and telep	phone bills are all pro	duced using batch proce	ssing.	Examir Marks	ner Only Remark
(a)	Name ONE other a	pplication that uses b	atch processing.			
				_ [1]		
(b)		n creating electricity	lowing sentences to desc bills using batch process			
	Master File	Error Report	Transaction File			
	Batch	Bill Turna	round Document			
	Details of current me	eter readings are enter	ed onto the system in one)		
	Problem data results	in an	·			
	Current meter readi	ngs are then stored or	n a	_		
	which is then merge	ed with the old	so the			
	customer's		can be calculated.	[5]		
(c)			ta is processed overnight rocessing data at this time			
				[1]		
(d)		why batch processing n an Internet-based b	is not a suitable method ooking system.	for		
					Total Q	aestion 8
				[1]		



9	Comput	er control systems are widely used in the home and in society today.	Examiner Only Marks Remark
	(a) (i)	Give TWO examples where computer control is used in traffic control systems. For each example list the sensor used to record data for the system.	- Nomani
		Example 1 [1]	
		Sensor 1 [1]	
		Example 2 [1]	
		Sensor 2 [1]	
	(ii)	Give ONE advantage and ONE disadvantage of this application of computer control in society today.	
		Advantage:	
		[1]	
		Disadvantage:	
		[1]	
6273	i		

(18)

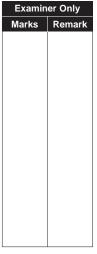
(b)	Feedback is an	essential part of all control systems.	Exar Mark	niner Only
	to help illustrate	5 in the following sequence for a feedback system e how feedback is used to keep the temperature in a ween 20 °C and 30 °C.		
	Step 2: The ter	mperature is recorded using a thermometer. mperature reading is compared to see if it is below 20 ve 30 °C.)°C	
	switche	emperature is below 20 °C the heating system is ed on. emperature is above 30 °C the windows are opened.		
		emperature is above 50°C the windows are opened.		
			[1]	
(c)	Give ONE exam	mple of a computer control system used in the home		
			[1]	
			Total	Question

(19)

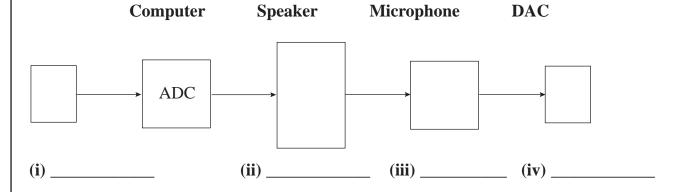
10	Digital technology has altered the way we record, distribute and listen to
	music.

(a) Digital recordings take sound waves in analogue format and converts them to digital using an ADC (Analogue to Digital Converter).

Give **ONE** reason why this conversion is necessary.



(b) Label the diagram below using the following terms



(c) Tick (✓) TWO advantages of digital music recordings for the listener.

Advantage	Tick (✓)
The file quality will remain the same at all times	
The file can be played on any audio device	
The file can be stored on a computer and played back	
The file quality deteriorates over time	
	[2]

[4]

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(d) Other than improved sound quality, list TWO advantages of using MIDI technology to create music files.	g	Examin Marks	er Only Remark
1			
2			
	_ [1]		
		Total Que	estion 10
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 Games consoles such as Xbox 360, Playstation 3, Nintendo Wii DS are widely available to teenagers today. (a) Tick (✓) THREE statements that are TRUE about gaming today. 			Examiner Only Marks Remark
Statement	Tick (✓)		
Some games consoles can be connected to the Internet for interactive gaming			
Virtual reality games are available for play via mobile phone technology			
All computer games are available for purchase in CD format			
Virtual reality games can now be found in some gaming arcades			
Games consoles now come with a variety of peripherals to allow interaction with the game		[3]	
(b) State TWO advances in technology that have helped improquality of computer gaming today.1	ove the		
2		[1]	
		[1]	
(c) Computer gaming has also had a negative impact on society	y.		
Give TWO health problems that have developed as a result term gaming.	t of long	5	
1			
		[1]	
2			Total Question 11
		[1]	
6273			

12		bile phones have a variety of uses including making voice calls and ssaging. They can also be used as entertainment devices.		Examir Marks	er Only Remark
	(a)	Identify TWO ways a mobile phone can be used as an entertainment device and give TWO pieces of advice to someone who wants to use mobile phone in this way.	nt se a		
	(b)	Identify TWO ways in which the increased use of mobile phones h impacted on society.			
			[6]	Total Qu	estion 12
		THIS IS THE END OF THE QUESTION PAPER			of Written nication
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