

## ADVANCED GCE COMPUTING

**Integrated Information Systems** 

**THURSDAY 5 JUNE 2008** 

Afternoon
Time: 1 hour 30 minutes

2511

Candidates answer on the question paper

Additional materials: No additional materials are required



Candidate Forename				Candidate Surname				
Centre Number				Candidate Number				

## **INSTRUCTIONS TO CANDIDATES**

- Write your name in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use blue or black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer all the questions.
- Do not write in the bar codes.
- Write your answer to each question in the space provided.
- Additional answer space is available on the lined pages at the back of this booklet. Answers on these
  pages must be clearly numbered.

## INFORMATION FOR CANDIDATES

- The number of marks for each question is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this paper is 90 of which 4 marks are allocated to the assessment of the quality of written communication.
- No marks will be awarded for using brand names of software packages or hardware.

FOR EXAMINER'S USE		
1		
2		
3		
4		
5		
6		
QWC		
TOTAL		

This document consists of 12 printed	pages	and 4	lined	pages
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Alan has bought a number of shoe shops over the last few years. Each shop has its own computer systems for keeping records of stock, accounting and correspondence. All these computers are standalone machines and use different software and hardware.

Alan is now considering upgrading all these computer systems and has decided to appoint an analyst/programmer to help in this process. He intends to advertise this post and interview the applicants.

You are to assume you are one of the applicants and have been asked the following questions.

(a)	State the meaning of the terms hardware and software.
	Hardware
	Software
	[2]
(b)	State <b>two</b> input and <b>two</b> output devices that may be used when selling a pair of shoes. State the purpose of each.
	Input device 1
	Purpose
	Input device 2
	Purpose
	Output device 1
	Purpose
	Output device 2
	Purpose
	[8]

1

(c)	h pair of shoes has a unique identifier as its primary key. A day's sales are held in a linked n order of primary key.	
	(i)	With the aid of diagrams, explain how the details of a new sale can be added to the list.
		[6]

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(ii)	With the aid of diagrams, explain how an item can be removed from the list when a pair of shoes is entered in error.
	[3]
	master stock file at each shop is held as a sequential file in order of the primary key of h pair of shoes.
(iii)	State why the linked list is suitable for updating the master stock file.
	[1]

2

	g all the computer facilities. She believes that each shop should have its own LAN.
(a) (i)	State the meaning of the term LAN.
<b>411</b>	[1
(ii)	Give <b>two</b> advantages and <b>one</b> disadvantage of using a LAN.
	Advantage 1
	Advantage 2
	Disadvantage
	[3
(iii)	Barbara has decided that all the shops should be linked using a WAN.
	State the meaning of the term WAN.
<i></i>	[1
	bara wants to use a distributed database for stock control.
(i)	State what is meant by a distributed database.
	[1
(ii)	Give <b>two</b> advantages and <b>two</b> disadvantages of a distributed database.
	Advantage 1
	Advantage 2
	Disadvantage 1
	Disadvantage 2[4

**(c)** Some shops have few computers to network and others have many computers to network. Barbara has decided to use both hubs and switches.

(i)	Hubs use half-duplex transmission.
	State the meaning of half-duplex and explain why a hub is a half-duplex device.
	[3]
(ii)	Switches use full-duplex transmission.
	State the meaning of full-duplex and explain why a switch is a full-duplex device.

(d)	Barbara has decided to use a router to access the World Wide Web.						
	Explain what a router does.						
	roz						
	[6]						
(e)	In order for communications over a WAN to work, protocols have to be used.						
	Explain why protocols are organised in layers.						
	[4]						

	the moment, some shops use flat files and others use a relational database to hold details of ck and suppliers.
(a)	Describe the meaning of
	a flat file
	[3]
	a relational database
41.	[4]
(b)	Suppliers provide many different styles of shoe but each style is from only one supplier.
	(i) Draw an entity-relationship (E–R) diagram to represent this.

3

	(ii)	Define tables to match your E-R diagram and identify any primary and foreign keys.
		[5]
(c)		three advantages of using a relational database rather than flat files.
	Adva	antage 1
	Adva	antage 2
	Adva	antage 3
		[3]
(d)		ain why a manager of a shop should have different access rights to the database than a a assistant.
		[3]

4 The distributed database is to be used for:

Undating stock levels

- updating stock levels as soon as shoes are sold;
- printing reports giving monthly statistics of sales in each shop.

For each of these, state the type of response time required and the implications this will have for hardware and software.

opuating stock levels	
Response time	
Hardware	••••
	••••
Software	
	[3
Printing reports	•
•	
Response time	
Hardware	
Software	

.....[3]

5 The following table shows the tasks that need to be done to create a database.

Task	Description	Duration (hours)
а	Design the E–R diagram	4
b	Create the tables	3
С	Create data entry routines	3
d	Create data deletion routines	3
е	Create data modification routines	3
f	Enter the data	6
g	Correct any errors in data entry	2
h	Produce a report to show details of stock	4
i	Produce a report showing items below reorder levels	4

Assuming unlimited resources draw a chart showing how these tasks can be completed. Label the tasks and state the minimum time in which they can all be completed.
[5]
įe.
Minimum time for completion[1]

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6	Explain how an autopilot can use actuators and sensors to keep an aeroplane on the right course and at the right height.
	[7]

clearly shown.	imber <b>must</b> be


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