

# **Monday 16 January 2012 – Afternoon**

### AS GCE COMPUTING

F451/01 Computer Fundamentals

Candidates answer on the Question Paper.

OCR supplied materials:

None

Other materials required:

None

**Duration:** 1 hour 30 minutes



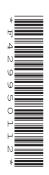
Candidate forename				Candidate surname			
Centre numb	oer			Candidate nu	umber		

#### **INSTRUCTIONS TO CANDIDATES**

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer all the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Do not write in the bar codes.

#### **INFORMATION FOR CANDIDATES**

- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this paper is 100.
- This document consists of **16** pages. Any blank pages are indicated.



(a) State the purpose of the following parts of a computer system.

	(i)	Input device
		[1]
	(ii)	Output device
		[1]
(b)		nop sells lottery tickets. Forms are filled out by customers who shade in the numbers they it. The forms are then read by a machine and a receipt is given to the customer.
		re an input device and an output device which will be used in this process, making clear it they are used for.
	Inpu	ıt
	Out	put
		[4]
(c)		ns bought in the shop are passed over a barcode reader at the checkout.
	Des sho	cribe how the system can use the information collected to control the levels of stock in the p.

	[0]

2	(a)	When data is entered into a system, it is sometimes entered manually and sometimes automatically.
		Describe automatic methods of entering data into a computer system. Using specific applications, explain the advantages of automatic data entry over manual data entry.
		The quality of written communication will be assessed in your answer to this question.

		••••
		[8]
/b\	When data is input manually into a computer it mands to be verified	
(D)	When data is input manually into a computer it needs to be verified.	
	Explain why verification is not required when data is read automatically into a computer.	
	Explain the double entry method of data verification for data entered manually.	
		••••
		[4]

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2	Λ	manufacturing	aamaanu	amplaya (	lorgo	number	of workers
J	$\overline{}$	manufacturing	Company	employs a	alaiye	Hullibel	oi workers.

The times when each worker comes to work and leaves at the end of the day are recorded. These times are then used to produce the payroll.

(a)	(i)	Describe the process of producing the payroll.	
			[5]
	(ii)	Explain why a batch processing system is appropriate for this application.	
	(ii)	Explain why a batch processing system is appropriate for this application.	
	(ii)	Explain why a batch processing system is appropriate for this application.	
	(ii)		

(b)	The workers are worried because so much information is being stored about them computers of the company.								
	(i)	Explain what information would be stored in order for the payroll system to work.							
		[3]							
	(ii)	Describe the fears that the workers may have and explain what the company can do to allay those fears.							
		[5]							

4	(a)	(i)	Describe what is meant by a LAN.
			[2]
		(ii)	When a computer on a network wishes to communicate with another device a handshake is used.
			Describe what a handshake is and explain why it is necessary.
			[4]
	(b)		rotocol is a set of rules necessary to ensure that data is properly transferred between ices. Protocols can be divided into two types: logical and physical.
			lain what is meant by each of the terms logical protocol and physical protocol and give an mple of each, explaining why it is important.
		(i)	Logical protocol
			[3]

		(ii)	Physical protocol
			[3]
5	(a)	Stat	te what is meant by the following terms:
		(i)	A buffer
			[1]
		(ii)	An interrupt
			[1]
	(b)	Des	cribe the transfer of data between primary memory and a hard disk drive.
			[5]

The signals and points on a section of railway track are controlled from a central control room by a

sin	gle operator.	
(a)	Describe <b>three</b> forms of output which would be important to the operator as part of interface.	the
	1	
	2	
	3	
		[6]
(b)	Explain why it is important to ensure a good interface design in this application.	

(c)		railway company uses systems software and generic applications packages in their puters.
	(i)	Describe the role of systems software.
		[2]
	(ii)	The marketing department of the railway company uses various generic applications packages, including presentation software to prepare automatic presentations to be shown to passengers while they are on the trains.
		State <b>three</b> other types of generic applications package which could be used by the marketing department, giving an example of how each may be used.
		1
		2
		3
		[6]

(a)	Exp	press the denary number +95 as	
	(i)	a binary number using 8 bits	
	(ii)	a number in hexadecimal notation	
(b)	Fyr	press the denary number –36 using a single 8 bit byte in	[2]
(5)		two's complement form	
	(::\	sing and magnitude forms	[2]
	(ii)	sign and magnitude form	
			[2]

(c)	When data is transmitted between devices on a network it is liable to corruption. One way of
	checking data for corruption is to carry out a check sum. This involves adding the data bytes
	together at each end of the transmission to ensure that they give the same result.

(i)	In a particular system the following three bytes were transmitted as a block. Add the
	binary values together showing your working.

[3]

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8	A new piece of software has been written to control a device which is used to test the reliability of valves in industry.
	State what will be included in the user guide.
	[5]

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