Oxford Cambridge and RSA Examinations

General Certificate of Education

APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY
Unit 2: How Organisations Use ICT

G041/CASE STUDY

Pre-Release Case Study Material and Tasks

PRE-RELEASED TASKS – INSTRUCTIONS FOR CANDIDATES

Read the attached case study and these instructions carefully. Carry out some research of your own so that you understand:

- how the organisation operates;
- the ICT systems it uses;

then carry out the tasks detailed below. There are **two** types of task. In **Task 1**, you will produce notes that will help you to answer questions in the examination for this unit. The other tasks will be marked and will contribute up to **30** of the **100** marks available for this unit. Make sure each piece of work has a suitable label or heading, e.g. **Task 2**: **Information Flow Diagram**.

You should produce your reports on a computer if possible.

You will need the work you produce when you take the examination for this unit.

Make sure that your name and centre number is on each page.

When you have completed the tasks you must sign and date the Authentication Statement and attach it to the front of your work. You must then ask your teacher to sign to confirm that the work is your own.

Task 1

Make notes which:

- describe the functions of the various sections within the company;
- analyse how Fine Foods Kitchens is structured;
- describe the following processes carried out by Fine Foods Kitchens:
  – designing kitchens;
  – processing confirmed customer orders – the description should detail the inputs, processing and calculations, and outputs involved;
- describe the ICT systems used in Fine Foods Kitchens;
- identify the strengths and weaknesses of these systems and recommend and explain improvements/extensions to the systems in relation to the needs of Fine Foods Kitchens;
- explain how legislation relating to ICT affects Fine Foods Kitchens.

Task 2

A customer enters a *Fine Foods Kitchens* showroom to buy a kitchen.

Draw a diagram to explain how information moves within *Fine Foods Kitchens* and with outsiders, during the process of buying. The process starts from the customer making a provisional decision on the type of kitchen required and finishes when the customer confirms the order for the kitchen.

Your diagram should show:

- who sends the information;
- who receives the information;
- the types of information communicated;
- the method by which it is communicated.

Task 3

Carry out some research and produce a report for the Managing Director of *Fine Foods Kitchens* that explains how the company and its employees might be affected by technological developments. Your report should explain clearly the possible impact of ICT on production methods within *Fine Foods Kitchens*. You should also evaluate possible future effects of technological development.

Your report should not exceed **500** words.

Fine Foods Kitchens fitted kitchen company – case study

Introduction

Fine Foods Kitchens is a company that supplies and installs kitchens to meet customers' requirements. The company has a head office and a warehouse. These are based in separate units on a business park. The company also has a factory where the kitchen units are manufactured. This is located on an industrial estate in another town. The company also has a number of town-centre showrooms where potential customers can view examples of the kitchens that can be supplied. The showrooms are where most of the company's salespeople are based. The company uses ICT to help manage its information.

Goods supplied

The company manufactures base units, wall units, worktops and plinths in a wide range of sizes, styles and finishes. These are made in the company's factory. The company supplies sinks, taps and accessories such as waste bins, vegetable baskets and towel rails. These are bought from other suppliers and stocks are kept in the warehouse. In addition, the company supplies gas and electrical appliances such as cookers, washing machines, dishwashers, fridges and freezers from a number of manufacturers. These are ordered from the manufacturer as required for delivery direct to the customer.

Functions and Staffing in Showrooms

In each showroom there are **four** main functions: sales, installation, administration and ICT support. A Branch Manager runs each showroom. The diagram in Figure 1 shows how each showroom is structured.

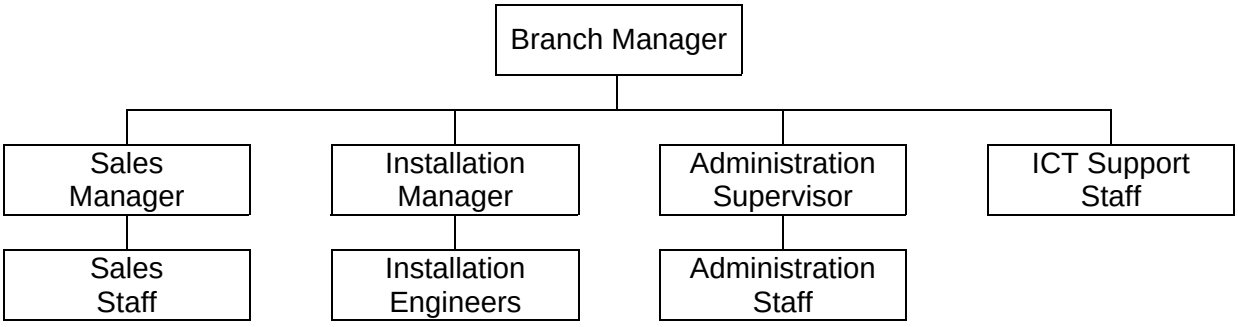


Figure 1: Showroom Structure

All sales staff must supervise the use of showroom facilities when they are not planning kitchens for customers. When a sale is confirmed, the member of staff receives a commission payment in addition to their basic salary.

Sales

Potential customers visit **one** of the company's showrooms. The showroom contains examples of complete kitchens for the customers to inspect, and samples of all the different unit, door and worktop finishes. The company also provides a comprehensive brochure (see Appendix 1) detailing all the items available. Salespeople are available to help the customers decide on the type of kitchen they want.

When the customer has made a provisional decision on the type of kitchen required, the next step is for a salesperson to visit the customer's home. The salesperson measures the kitchen and discusses the customer's requirements in detail. In order for this to happen, one of the administration staff arranges an appointment with the customer. A word-processed letter confirms the appointment. The salesperson is notified by internal mail.

At the appointment, the salesperson produces a draft plan of the kitchen on graph paper. The salesperson also notes down the style and finish required for units, doors and worktops and details of any appliances and accessories the customer wants. A copy of this is left with the customer. A note is also made of any necessary additional plumbing or electrical wiring needed to complete the kitchen. On returning to the showroom, the salesperson enters the customer's details on the computer system and uses special kitchen design software to produce the final design of the kitchen. The dimensions of the kitchen are entered and the software produces a scale drawing of the kitchen outline as shown in Figure 2. The required units and appliances are selected from a library of icons and positioned on the drawing.

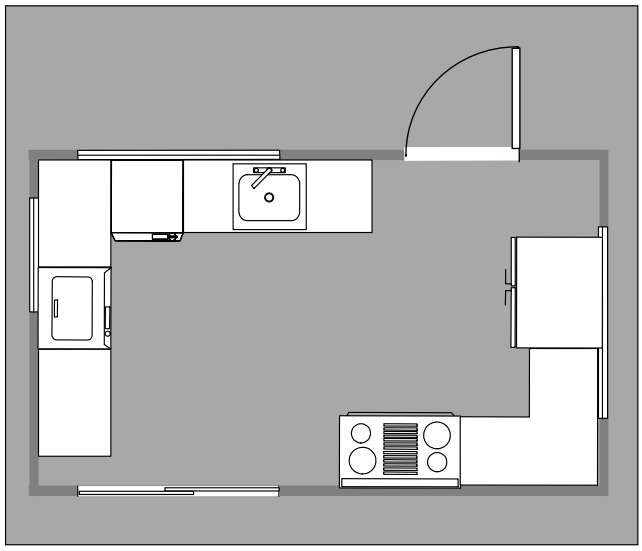


Figure 2: Example Kitchen

The software identifies all the items required to complete the kitchen and calculates the dimensions of worktops and plinths. The software generates a list of all the parts needed and the salesperson uses this, together with details of labour costs, to produce a quotation for the customer detailing the total cost of supplying and installing the kitchen (see Appendix 2).

The printed design and the quotation are passed to an Administration Assistant by internal mail. The Administration Assistant enters the information from the quotation into a word-processed template to produce an order form. This lists all the items needed and includes the salesperson's name (see Appendix 3). The printed design, the quotation and the order form are posted to the customer.

If the quotation is acceptable, the customer completes the order form and returns it to the company's Head Office with a deposit of 25% of the total cost.

Administration

The Administration Supervisor in each showroom is responsible for ordering any office and marketing supplies as needed.

The Administration Assistants carry out all of the office procedures within a showroom. They produce and send out all correspondence from the showroom, including letters to customers. They also produce confirmation purchase orders for goods and services.

At the end of each week, an Administration Assistant creates a summary of all customer surveys, financial summaries for completed installations, and a summary of all purchase orders raised. This information is e-mailed to Head Office using a dial-up modem linking one of the administration computers to the telephone line.

At the end of each week, one of the Administration Assistants also checks any invoices received from suppliers against the goods received or work done and passes them to Head Office for payment.

An important responsibility of this section is keeping records of the hours worked by each member of the showroom's staff, along with any commission earned. This information is sent monthly, by e-mail, to the Human Resources department in Head Office so that wages due can be calculated and paid.

Installations

The Installation Manager in each showroom is responsible for all aspects of installing kitchens in customers' homes.

When a confirmed order is received from Head Office, this must be used to schedule the installation engineers. A copy of this schedule is then returned to the Head Office order-processing department.
At the end of each week the Installation Manager produces a report on completed installations.

The Installation Manager checks the time sheets of all installation staff and signs them before passing them to the administration section for onward transmission to Head Office.

ICT Support

The ICT support staff for the company are all based in the showrooms and support their systems. This is because the most complex systems and software are in these locations.
These staff also provide a telephone and on-site, call-out support service for Head Office. Using a dial-up link, they remotely maintain the Head Office network. When required, the support staff install new software and develop new areas of the company database.

Functions and Staffing in the Head Office, Warehouse and Factory

The main functions in Head Office are order processing, human resources and accounts. A Finance and Administration Director oversees all of these functions. Also based in Head Office is the Sales and Marketing Director. This director is responsible for overseeing the running of the showrooms as well as advertising the company. The Production Director is responsible for the staff and activities in the factory and the warehouse. Overall responsibility for the day-to-day running of the company falls to the Managing Director. The diagram in Figure 3 shows how Head Office is structured and its links with other parts of the company.

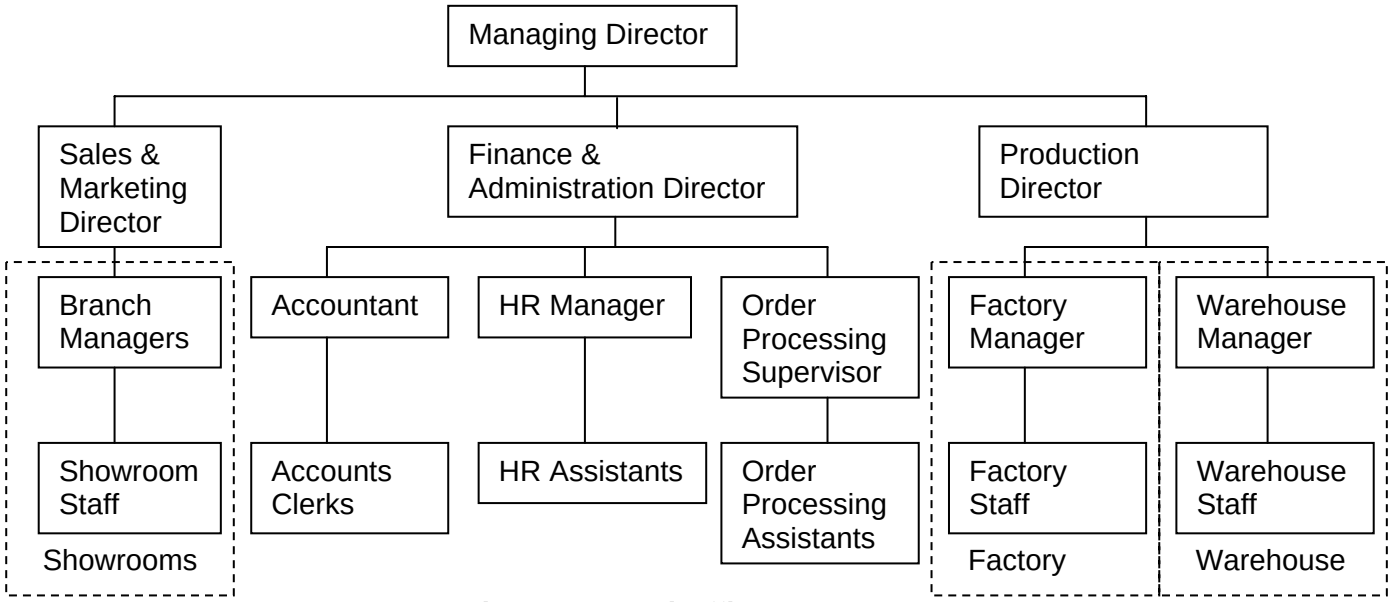
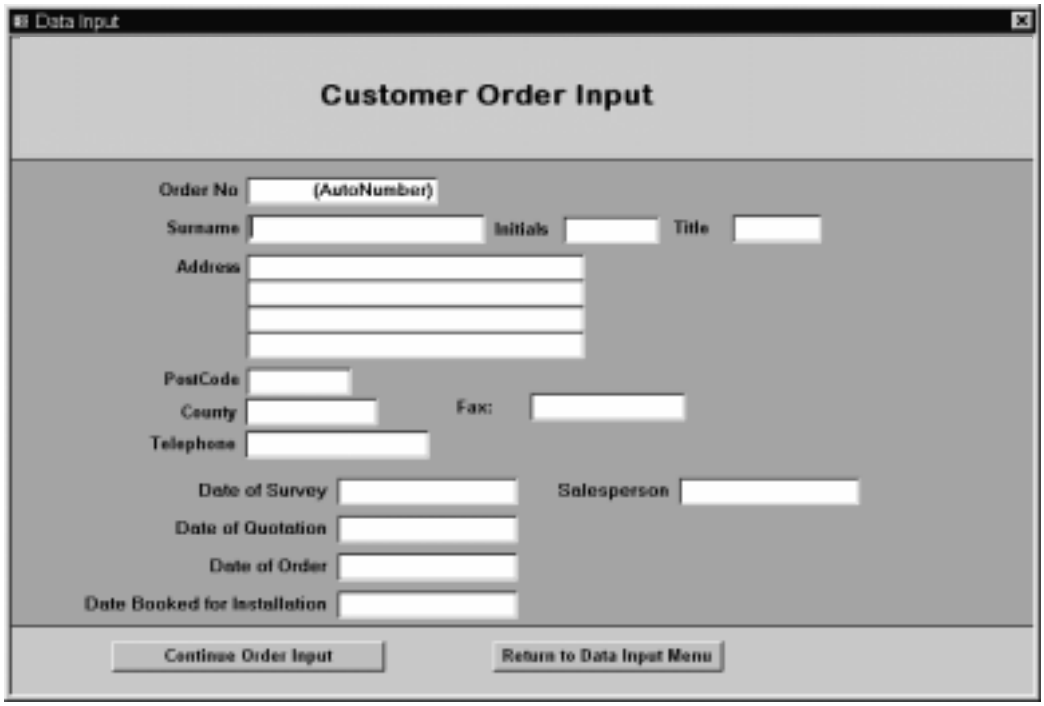


Figure 3: Head Office Structure

Order Processing

When the order is received by post from the customer, an order-processing clerk enters the details of the order onto the computer system, using the data entry screens shown in Figure 4. The product style and product number are entered and the unit price is looked up and automatically displayed. The quantity is entered and the system calculates the total price for that item. The total order value is also calculated by the system. The total value of the order is added to the sales of the named salesperson who receives commission on the sale when the work is completed and the customer has paid in full.



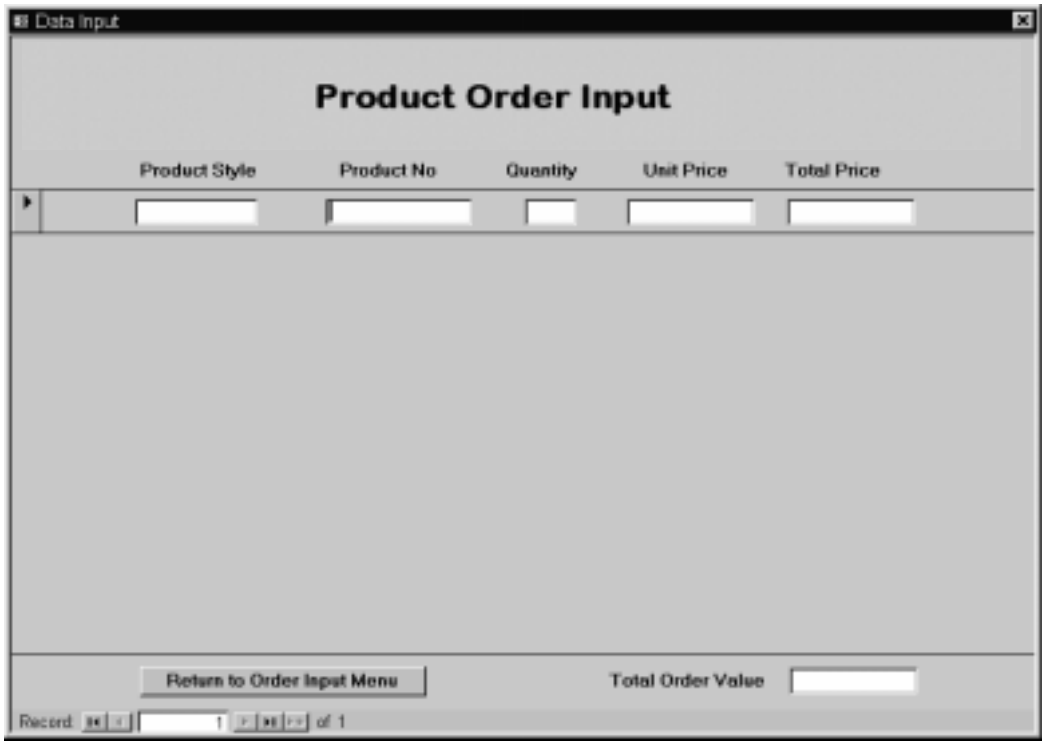


Figure 4: Example Order Input

A printed copy of the order is sent by internal post to the warehouse where the Warehouse Manager manually checks the availability of the parts needed. If any of the company-manufactured items are not in stock, the Warehouse Manager sends a special order by fax to the Production Director at the factory so that the missing items can be manufactured. The Production Director confirms the order and sends back a completion date for the items by fax.

The Warehouse Manager informs the relevant Installation Manager by post when all the necessary items will be available. The Installation Manager produces an installation schedule and posts a copy to the Order-processing Clerk.

The Order-processing Clerk generates purchase orders for any appliances required (see Appendix 4) and posts them to the appropriate manufacturers. These orders include the name and address of the customer, as the goods are delivered directly to the customer's address. The order also includes an agreed delivery date to coincide with the installation schedule.

The customer is sent a confirmation letter of their order (see Appendix 5) together with a receipt for the deposit and notification of the proposed installation date.

Accounts

A copy of the order is passed to the accounts department where an invoice is produced and sent to the customer. The customer is required to pay a further 50% of the total before installation takes place and the final 25% once it is finished. The accounts department informs HR when the invoice has been paid in full, so that the salesperson's commission can be paid.

The accounts department keeps records of all financial transactions on the server. This includes income received from sales, payments made for supplies and raw materials, payments to contractors, and staff wages and commission.

Human Resources

The company employs a number of full-time installation engineers. They are paid overtime for any extra hours they work. Salespeople are also employed on full-time contracts. They are paid a basic salary plus commission on all the sales they make. The HR department keeps records of all the staff.

Details of all staff are stored on the database. Data on each member of staff includes:

- personal details (name, address, date of birth, emergency contact);
- job (salesperson, carpenter, plumber, electrician etc);
- salary;
- commission earned;
- normal hours;
- availability;
- hours worked.

In addition the database contains details of appraisal, pension and holiday entitlement and any company medical cover.

ICT facilities

ICT facilities in showrooms (see Figure 5)

There are **three** computer systems located in each showroom for the administration section which are connected by a local area network (LAN), and share a fast laser printer. These computer systems have word-processing and other general office software installed on them. **One** of these workstations is linked to the telephone line by a modem.

Each showroom has at least **two** dedicated stand-alone computer systems for kitchen design. These computers run under a different operating system from the administration computers. Each system has a large TFT monitor and a colour laser printer. Only the kitchen design software is installed on these computers.

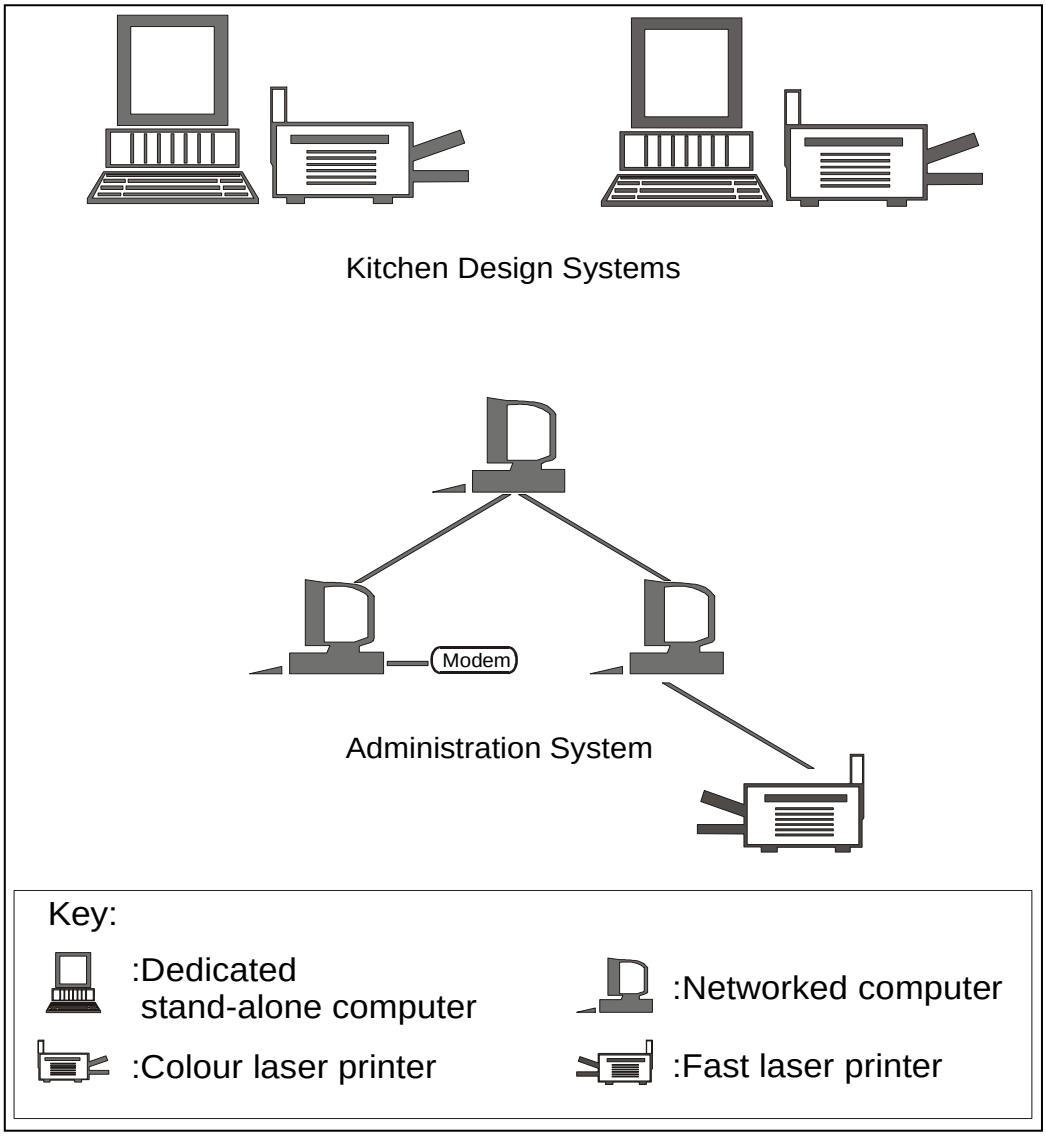


Figure 5: Showroom ICT Systems

ICT facilities in Head Office

The Head Office also has a number of workstations linked in a LAN with a single server. All departments have at least **one** workstation. There is a fast laser printer, which acts as the network printer and can be used from all workstations for bulk printing. However, each department also has a local inkjet printer for printing 'one-off' or confidential documents. All personnel data, sales and marketing data, accounts data, order-processing data and software are stored on the server and can be accessed from the workstations. All the workstations in Head Office have access to word-processing software.

Appendix 1 – Sample Brochure Page

Fine Foods Kitchens

High Base Units

870mm high (excl. worktop) x 570mm deep (excl. fascia)

CABINET	300mm UNIT	400mm UNIT	500mm UNIT	600mm UNIT	800mm UNIT	1000mm UNIT - suitable for sinks & hobs	925mm x 925mm CORNER UNIT	800mm CORNER UNIT	1000mm CORNER UNIT
Sierra	22.50	23.25	24.00	24.75	25.50	26.25	41.25	24.75	26.25
Alpine	27.00	27.90	28.80	29.70	30.60	31.50	49.50	29.70	31.50
Nevada	28.50	29.25	30.00	30.75	31.50	33.00	50.25	30.75	32.25
Mendip	29.25	30.23	31.20	32.18	33.15	34.13	53.63	32.18	34.13
Cotswold	31.50	32.55	33.60	34.65	35.70	36.75	57.75	34.65	36.75
Penine	32.63	33.71	34.80	35.89	36.98	38.06	59.81	35.89	38.06
Andes	33.75	34.88	36.00	37.13	38.25	39.38	61.88	37.13	39.38
Grampian	38.25	39.53	40.80	42.08	43.35	44.63	70.13	42.08	44.63
Snowdon	42.75	44.18	45.60	47.03	48.45	49.88	78.38	47.03	49.88
Tyrol	45.00	46.50	48.00	49.50	51.00	52.50	82.50	49.50	52.50
Adirondak	36.00	37.20	38.40	39.60	40.80	42.00	66.00	39.60	42.00
Himalaya	40.50	41.85	43.20	44.55	45.90	47.25	74.25	44.55	47.25

All prices in £s inclusive of VAT @ 17.5%.

Appendix 2 – Quotation

Fine Foods Kitchens QUOTATION

Customer Name and Address
Mr R.A Khan
33 Melville Street
London
SE4 4HR

Quotation: 226/1362

Date: 22/09/05

Sales Rep	Branch	Terms
D Ricketts	Camberwell	25%on order, 50%before fitting, 25%on completion

Product code	Range /Manufacturer	Units	Description	Qty	Unit Price £	Cost £
SW300SA	Sierra	Standard Wall	300mm WALL UNIT	3	18.51	55.53
SW500SA	Sierra	Standard Wall	500mm WALL UNIT	2	23.25	46.50
SW800SA	Sierra	Standard Wall	800mm WALL UNIT	1	21.06	21.06
SW60CSA	Sierra	Standard Wall	600mm Corner WALL UNIT	1	26.17	26.17
SW625SA	Sierra	Standard Wall	625mmx625mm Corner WALL UNIT	1	34.47	34.47
BW600SA	Sierra	Special Wall	600mm Bridging WALL UNIT	1	21.06	21.06
HB600SA	Sierra	High Base	600mm UNIT	2	24.75	49.50
HB800SA	Sierra	High Base	800mm Corner UNIT	2	24.75	49.50
DB400SA	Sierra	Drawer Base	400mm UNIT	3	27.45	82.35
DB600SA	Sierra	Drawer Base	600mm Sink/Hob UNIT	2	28.72	57.44
SBST2TC	Starcast	Teftuff	Single bowl with tap pack	1	59.57	59.57
PWT366C	Postformed	Worktop	3600 x600	1	80.84	80.84
PWT156C	Postformed	Worktop	1500 x600	2	34.03	68.06
08392/1 W	Homelec	Single Oven	Starpack Conventional	1	106.38	106.38
08496/1 W	Homelec	Built Under Integrated Fridge	Conventional	1	237.45	237.45
08573/1 W	Homelec	Integrated Dishwasher	6 Programme 12 Place	1	254.47	254.47
08803/1 W	Homelec	Integrated Washing Machine	Conventional	1	509.79	509.79
			Fixtures & Fittings		127.60	127.60
			Installation		405.90	405.90

PLEASE NOTE: This quotation is valid for 30 days from the date of issue.

Subtotal	2,293.64
VAT	401.39
Total Cost	2,695.03
Deposit due	673.76

Appendix 3 – Order

Fine Foods Kitchens *ORDER*

Customer Name and Address
Mr R A Khan
33 Melville Street
London
SE4 4HR

Order No:

Date:

Sales Rep	Branch	Terms
D Ricketts	Camberwell	25% on order, 50% before fitting, 25% on completion

Product code	Range /Manufacturer	Units	Description	Qty	Unit Price £	Cost £
SW300SA	Sierra	Standard Wall	300mm WALL UNIT	3	18.51	55.53
SW500SA	Sierra	Standard Wall	500mm WALL UNIT	2	23.25	46.50
SW800SA	Sierra	Standard Wall	800mm WALL UNIT	1	21.06	21.06
SW60CSA	Sierra	Standard Wall	600mm Corner WALL UNIT	1	26.17	26.17
SW625SA	Sierra	Standard Wall	625mmx625mm Corner WALL UNIT	1	34.47	34.47
BW600SA	Sierra	Special Wall	600mm Bridging WALL UNIT	1	21.06	21.06
HB600SA	Sierra	High Base	600mm UNIT	2	24.75	49.50
HB800SA	Sierra	High Base	800mm Corner UNIT	2	24.75	49.50
DB400SA	Sierra	Drawer Base	400mm UNIT	3	27.45	82.35
DB600SA	Sierra	Drawer Base	600mm Sink/Hob UNIT	2	28.72	57.44
SBST2TC	Starcast	Teftuff	Single bowl with tap pack	1	59.57	59.57
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08392/1W	Homelec	Single Oven	Starpack Conventional	1	106.38	106.38
08496/1W	Homelec	Built Under Integrated Fridge	Conventional	1	237.45	237.45
08573/1W	Homelec	Integrated Dishwasher	6 Programme 12 Place	1	254.47	254.47
08803/1W	Homelec	Integrated Washing Machine	Conventional	1	509.79	509.79
			Fixtures & Fittings		127.60	127.60
			Installation		405.90	405.90

I wish to order the above.

I enclose a cheque for …….. OR

Please debit my credit card no ……..

Expiry date/Issue no …….. the amount of ……..

Signed ……..

Subtotal	2,293.64
VAT	401.39
Total Cost	2,695.03
Deposit due	673.76

Appendix 4 – Purchase Order

Fine Foods Kitchens PURCHASE ORDER

Supplier
Homelec Appliances Ltd
Radley House
Lower Marsh Street
Reading
RG1 3AZ

PO No: 226/3/117

Date: 20/10/05

Bill to:
Fine Foods Kitchens
78 New Road
Reading
BERKS
RG11 2QQ

Deliver to:
Mr R A Khan
33 Melville Street
London
SE4 4HR

Required by	Ship via	Terms
28/10/02	Browns Transport	30 days

Item code	Units	Product	Description	Qty	Unit Price £	Total £
08392/1W	n/a	Single Oven	Starpack Conventional	1	82.50	82.50
08496/1W	n/a	Built Under Integrated Fridge	Conventional	1	167.40	167.40
08573/1W	n/a	Integrated Dishwasher	6 Programme 12 Place	1	179.40	179.40
08803/1W	n/a	Integrated Washing Machine	Conventional	1	239.40	239.40

Subtotal	668.70
VAT	117.02
Balance due	785.72

Appendix 5 – Confirmation Letter

Fine Foods Kitchens
78 New Road
Reading
BERKS
RG11 2QQ

Telephone: 01072 779000 *Fax: 01072 779100*

Mr R A Khan
33 Melville Street
London
SE4 4HR

22 October 2005

Our Ref: ML/226/33

Order Number: 226/3/127

Dear Mr Khan

We are pleased to confirm your order for a Fine Foods Kitchens installation.

We acknowledge receipt of your deposit of £673.76

The installation of the kitchen is due to start on 28th October 2005 and should take about three days to complete.

Should you have any queries regarding your order, please contact our Camberwell branch on 0208 273 5678, quoting the above order number.

We hope that you will enjoy many years of good cooking in your new Fine Foods kitchen.

Yours sincerely

M Lloyd
Sales Administrator

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APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY
Unit 2: How Organisations Use ICT **GO41**

Candidate name	
Candidate number	
Centre number	

Authentication Statement

The material I am taking into the examination is my own work.

(This must be signed by the candidate and then confirmed by the teacher.)

Signature of Candidate _____ Date _____

Signature of Teacher _____ Date _____

Instructions for Centres

- The candidate's work must be attached to this sheet.
- It must be kept secure until it is returned to the candidate at the start of the examination.
- At the end of the examination the work must be submitted to OCR inside the Question Paper.

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APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

Unit 2: How Organisations Use ICT

G041/TEST

Specimen Paper

Additional materials:
Pre-released material and tasks with candidate instructions
Candidate's pre-prepared materials

TIME 1 hour 30 minutes

Candidate Name	Centre Number	Candidate Number

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the spaces above.
- Write your answers, in blue or black ink, in the spaces provided on the question paper.
- Answer **all** the questions.
- Read each question carefully and make sure you know what you have to do before starting your answer.

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**.
- No marks will be awarded for using brand names of software packages or hardware.

Question number	For examiner's use only
Task 2	
Task 3	
1	
2	
3	
4	
5	
6	
7	
8	
9	
TOTAL	

Section A

This section relates to the case study on *Fine Foods Kitchens*.

1 Identify **two** sections within *Fine Foods Kitchens'* Head Office. For **each**, describe **one** task carried out by the section that contributes to its function.

Section 1: _____

Task: _____

_____ **[2]**

Section 2: _____

Task: _____

_____ **[2]**

2 Describe **four** essential tasks that make up the function of the administration section in a showroom.

Task 1: _____

_____ **[1]**

Task 2: _____

_____ **[1]**

Task 3: _____

_____ **[1]**

Task 4: _____

_____ **[1]**

3 Explain how each showroom forms part of the overall structure of the company.

_____

_____

_____ **[2]**

4 An order processing system is used when a customer confirms an order for a kitchen.

(a) Identify **three** items of information about products that are required to be input into the order processing system.

Item 1: _____ **[1]**

Item 2: _____ **[1]**

Item 3: _____ **[1]**

(b) Identify **two** other items of information that must be input into the order processing system.

Item 1: _____ **[1]**

Item 2: _____ **[1]**

(c) What is the source of this information? _____

_____ **[1]**

(d) How is this information captured? _____

_____ **[1]**

(e) Describe the **processing** and **calculations** carried out by the order processing system.

_____

_____

_____

_____

_____

_____ **[4]**

(f) Identify **two** forms of output of the order processing system.

Form 1: _____ **[1]**

Form 2: _____ **[1]**

4 **(g)** Identify **two** methods used to communicate the output from the order processing system.

Method 1: _____ **[1]**

Method 2: _____ **[1]**

5 Describe the ICT system used by staff in a *Fine Foods Kitchens'* showroom when dealing with customer sales. You should include details of the hardware and software used, examples of input data and outputs, and the processes carried out.

Hardware: _____

_____

_____

Software: _____

_____

_____

Input data: _____

_____

_____

Outputs: _____

_____

_____

Processes: _____

_____

_____ **[10]**

6 *Fine Foods Kitchens* wants to improve the systems used in their showrooms and reduce the time and administration involved in providing customers with a kitchen design and quotation.

(a) Evaluate the ICT systems currently used in a *Fine Foods Kitchens'* showroom.

[5]

(b) Explain how the systems in the showrooms could be improved. Identify any problems that must be overcome and explain the benefits the improvements would bring.

[5]

7 *Fine Foods Kitchens* keeps records of customers and employees on computer systems.

(a) Which piece of legislation governs the storage and processing of personal information?

_____

_____ **[1]**

(b) Identify **four** requirements of *Fine Foods Kitchens* to comply with the legislation.

Requirement 1: _____

_____ **[1]**

Requirement 2: _____

_____ **[1]**

Requirement 3: _____

_____ **[1]**

Requirement 4: _____

_____ **[1]**

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SECTION B
You do not need the case study or your notes to answer these questions.

8 The European Union Directive covering the use of display screen equipment at work requires minimum standards for both the equipment being used and the working environment.

(a) Identify **two** items of equipment covered by these requirements.

Item 1: _____ **[1]**

Item 2: _____ **[1]**

(b) Identify **one** aspect of the working environment covered by these requirements.

_____ **[1]**

(c) Explain why this directive was introduced.

_____

_____

_____ **[2]**

(d) Apart from ensuring that the equipment and environment meet the minimum standards, describe what an employer must do to comply with the regulations.

_____

_____

_____

_____

_____

_____

_____

_____ **[5]**

9 An organisation is concerned about the security of software and data stored on its computer system.

(a) Describe **three** standard ways of working the organisation could require its staff to follow to improve the security of software and data.

Way 1: _____

_____

_____ **[2]**

Way 2: _____

_____

_____ **[2]**

Way 3: _____

_____

_____ **[2]**

(b) Explain why **one** of these standard ways of working is likely to be effective, any possible limitations to its effectiveness or ways that it might be enforced.

_____

_____

_____

_____

_____

_____ **[4]**

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General Certificate of Education

APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

Unit 2: How Organisations Use ICT

G041/MS

Mark Scheme

There are **100** marks available for this test. They are allocated as follows:

- Tasks 2 and 3 **30**
- Section A of the test paper **50**
- Section B of the test paper **20**

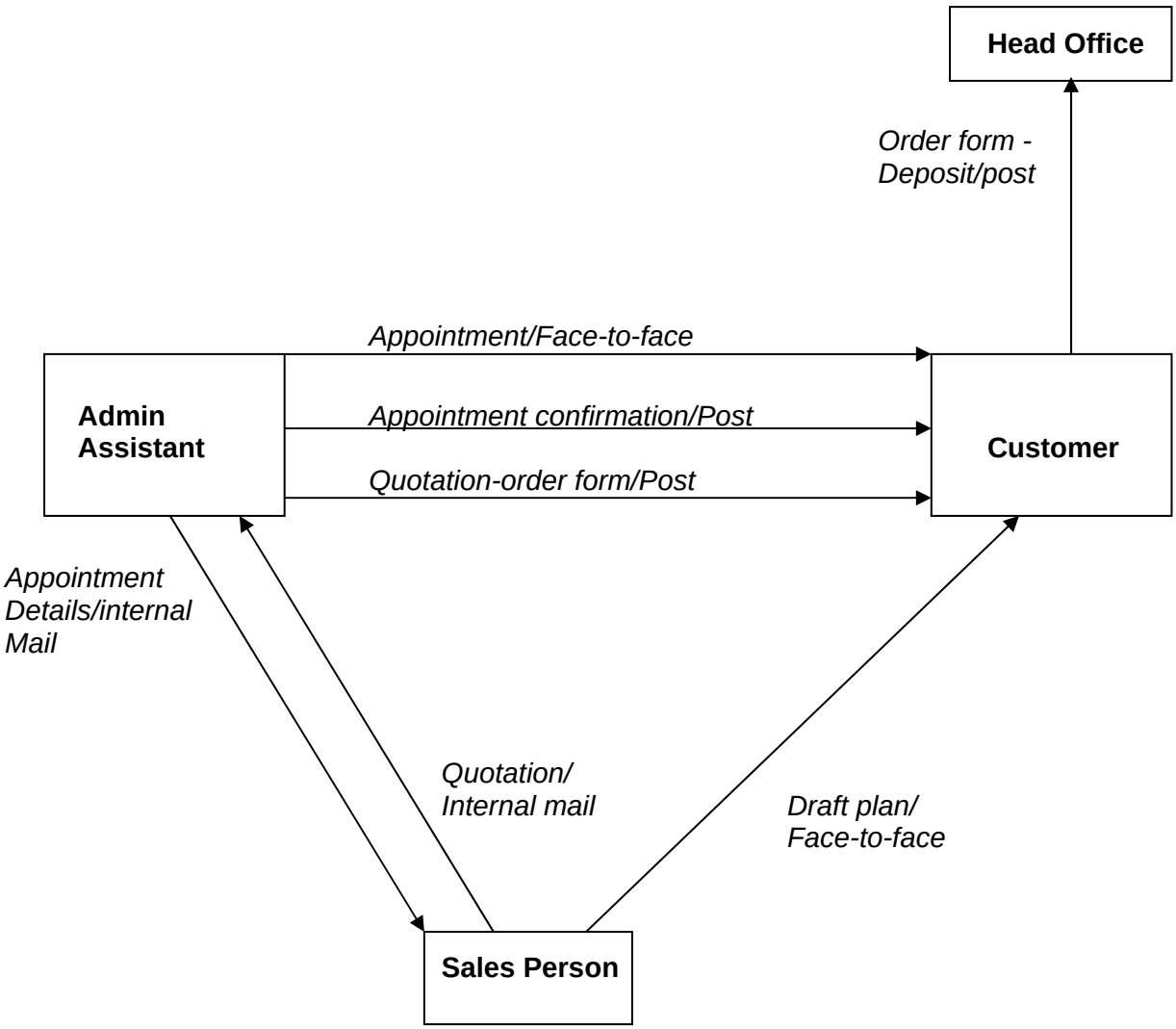
Task 2

1 mark each for boxes labelled:

- Admin Assistant
- Customer
- Salesperson
- Head Office

plus labelled arrows to show the following information flows (1 mark each) and methods (1 mark each)
Max 15 marks.

Note:
Arrows should only be awarded points if the are drawn to and from the correct boxes.
Marks may be awarded for unconventional diagrams provided they isolate the senders and receivers of information.
Do not award marks for flow diagrams or series of text boxes linked by arrows.
Marks cannot be awarded for 'How' if the information is not identified.



[15]

Task 3
Tiered response based on:

Levels	Marks	Guidance
3	11-15	A detailed explanation applied to *Fine Foods Kitchens* that includes advantages and disadvantages. Your report will be consistently well structured and there will be few, if any, spelling punctuation and grammar errors.
2	6-10	A limited explanation applied to *Fine Foods Kitchens*. Your report will contain few spelling punctuation and grammar errors.
1	1-5	Basic statements of effects or explanations not applied to *Fine Foods Kitchens.* Your report may contain errors in spelling, punctuation and grammar.

To include consideration of:

- use of robotics for production of kitchen units;
- increased speed of production;
- cost of production – initial investment needed – reduced running costs;
- safety of workers;
- quality of final product;
- future impact on:
  – health and safety;
  – employment levels;
  – working practices.

[15]

Question	Answer	AO	Mark
1	*Two and matching task from:* • **order processing** (1) *plus **one** of*: – entering details of orders; – generating purchase orders for appliances; – sending confirmation letter to customers; • **accounts** (1) *plus **one** of*: – producing invoices; – inform HR when account paid in full; – keeping records of financial transactions; • **human resources** (1) *plus* – keeping records of staff.	AO2	**2x2**
2	*Four from:* • order office and marketing supplies; • produce and send correspondence; • produce confirmation purchase orders; • produce orders for contractors; • create and email summaries weekly; • check invoices received; • keep records of hours worked and commission.	AO2	**4x1**
3	Sales and Marketing Director responsible for overseeing showrooms. Branch Mangers report to Sales and Marketing Director.	AO2	**2 x1**
4(a)	Product style. Product number. Quantity.	AO3	**3x1**
4(b)	*Two from:* • customer name; • customer address; • customer telephone/fax number; • date of survey; • date of quotation; • date of order; • name of salesperson.	AO3	**2x1**
4(c)	From customer order form.	AO2	**1**
4(d)	Keyed in by order-processing clerk.	AO2	**1**

Question	Answer	AO	Mark
4(e)	*Four from:* • look up price of each item; • multiply unit price by quantity; • add total prices to give order value; • calculate VAT; • divide by 2 to give 50% pre-installation payment; • subtract deposit paid from order value; • calculate final payment/subtract pre-installation payment; • add to sales of named salesperson.	AO2	**4**
4(f)	*Two from:* • printed copy of order; • purchase order for appliances; • confirmation letter to customer.	AO2	**2x1**
4(g)	Internal mail. Post.	AO2	**2x1**
5	**Hardware:** • admin has three computer work stations (1) linked in a LAN (1) with shared fast laser printer (1); • sales use at least two stand-alone computer systems (1) each with large TFT monitors (1) and colour laser printer (1). **Software:** • admin use word processing (1) and general office software (1); • sales use kitchen design software (1) different operating system (1). **Input data:** • salesperson enters customers details (1) and dimensions of kitchen (1); • admin assistant enters data from quotation (1). **Output:** • final kitchen design; • list of parts needed; • order form for customer. **Processes:** • kitchen design software creates scale drawing (1) units etc selected from a library of icons (1) and positioned on drawing (1) all items required identified (1) dimensions of worktops and plinths calculated (1); • admin uses word processed template (1). *[description must include at least **one** point from each section, to a maximum of **ten** marks]*	AO2	**10**

Question	Answer	AO	Mark
6(a)	*Five from:* *Strengths* • high specification systems for kitchen design; • local area network for administration; • fast laser printer; • modem link to telephone line; • word processing and general office software on admin systems; *Weaknesses* • salesperson collects information on paper for entry on return to showroom; • kitchen design and admin systems not linked; • kitchen design software only outputs parts list; • costs and quotation must be manually circulated; • information from quotation must be re-entered to produce order form. *1 mark to a maximum of 5 [maximum of 4 for either strengths or weaknesses]*	AO4	**5**
6(b)	Answers could include • improvement: – network all systems; – provide salespeople with laptop computers with kitchen design software; • problems/implications: – systems have different operating systems; – need special network software; – may need a server; – will need high specification laptops; –security risk –easy to steal or lose; –need printer as well – adding to weight; • benefits: – can share expensive resources such as colour lasers; – do not need to pass paper; – do not need to re-enter data to create order. – can design kitchen on site; – can leave design and quotation with customer; – can adjust design to meet customer's requirements. *[1 mark per point to a maximum of 5]*	AO4	**5**

Question	Answer	AO	Mark
7(a)	Data Protection Act	AO3	**1**
7(b)	*Four from:* • must register with Data Commisioner; • must process data fairly and lawfully; • must only use data for the specified purpose; • must ensure that data is adequate, relevant and not excessive for the purpose; • must ensure data is accurate and that it is kept up to date; • must not keep data longer than necessary; • must only process data in accordance with data subjects rights; • must protect data against unauthorised or unlawful processing, accidental loss, damage or destruction; • must not transfer data to countries that do not provide adequate data protection.	AO3	**4x1**
8(a)	*Two from:* • screen; • keyboard; • work desk/surface; • work chair.	AO2	**2x1**
8(b)	*One from:* • space; • lighting; • reflection and glare; • noise; • heat; • radiation; • humidity.	AO2	**1**
8(c)	Increased use of computers in the work place (1) concern over health and safety of people using computers for long periods (1) such as RSI (1) eye strain (1) and screen radiation (1).	AO2	**2**

Question	Answer	AO	Mark
8(d)	Answers could include: • analyse workstations to assess risk (1) and take steps to reduce such risk (1) need to look at whole work station (1) the job being done (1) any special needs of individual staff (1); • plan work so there are breaks or changes of activity (1); • arrange and pay for eye tests on request (1) and provide spectacles if special ones are needed (1) provide further eye tests at regular intervals (1); • provide health and safety training (1) so that employees can use the workstation safely (1) and know how to avoid health problems (1); • provide health and safety information (1) including general • background information (1) and specific details of steps taken to reduce risk (1) and comply with regulations (1).	AO3	**5**
9(a)	*Answers could include:* • keep dated backup copies of all files (1) on another storage medium and in another location (1); • protect passwords (1) change these regularly (1); • follow house rules for use of portable media (1) and the downloading of files (1).	AO2	**3x2**
9(b)	Explanation must relate to **one** of the **three** answers for **9(a).** Backup: • if files are lost/corrupted (1), most recent backup can be used to restore (1); • will not lose everything if there is a fire (1) as kept in another location (1) but any work done since the last backup will be lost (1). Protecting passwords: • risk of unauthorised access reduced (1) as less chance of passwords being disclosed (1); • changing regularly reduces risk of password being worked out or guessed (1) can enforce changing of password by not allowing user to logon until password changed (1). House rules: • forbidding the use of portable media from outside the company and all downloading will prevent virus infection (1) but restricts the use that can be made of the system(1) requiring all portable media to be virus checked before use (1) and restricting downloads to 'safe' sites (1); • offers some protection from viruses (1) but virus checking software must be kept up-to-date (1) as new viruses constantly being created.	AO4	**4**

Total mark available: 100

Analysis of marks:

Requirements:	
AO1	0
AO2	40
AO3	40
AO4	20
Check:	**100**

Totals:	
AO1	0
AO2	41
AO3	40
AO4	19
Check:	**100**

Differences:	
AO1	0
AO2	1
AO3	0
AO4	-1

QN	Part	Mark	AO
Task 2		15	3
Task 3		10	3
		5	4
1		4	2
2		4	2
3		2	2
4	a	3	3
	b	2	3
	c	1	2
	d	1	2
	e	4	2
	f	2	2
	g	2	2
5		10	2
6	a	5	4
	b	5	4
7	a	1	3
	b	4	3
8	a	2	2
	b	1	2
	c	2	2
	d	5	3
9	a	6	2
	b	4	4
		100	

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APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

Unit 9: Working to a Brief

G048/TASK

Specimen Research and Development Task

TO BE ISSUED TO CANDIDATES AT THE START OF THE COURSE.
TO BE OPENED ON RECEIPT.

TIME: There are no time limitations on the tasks other than that they must be submitted by the appropriate internal deadline set by the candidate's centre. This deadline will reflect the need for the centre to complete marking of the tasks and submission of marks to OCR by xx May 200x

INSTRUCTIONS TO CANDIDATES

- You must use this booklet for guidance throughout your work for this unit.
- You must complete your outcome(s) by the date set by your teacher.
- You must submit all your preparatory work with your outcome(s).
- All preparatory work and the outcome(s) must be your own work.

INFORMATION FOR CANDIDATES

- The total number of marks available for this paper is **100**.
- You may start your preparatory work as soon as you receive this paper.
- There are no restrictions on computing facilities, hardware or software that may be used.

It is important that you discuss with your teacher anything you do not understand.

INTRODUCTION AND PREPARATION

Read the scenario and briefs in this booklet and select **one** to research and develop.

For assessment of this unit, you must produce preparatory work and outcomes.

Whichever project you choose, it will have to fit in with the already existing practices within the establishment you are working with. Before you plan the structure and ultimate content of your project, you will need to carry out some research into the working practices within the organisation. This research should enable you to plan a project that works smoothly and with a minimum of disruption. Your report on the working practices within the organisation should include a range of issues, including the relevant structure of the organisation, and identified strengths and weaknesses.

A project management plan will help you to organise your time efficiently. As a guide, the minimum requirements for a project management plan would include:

- key dates, deadlines and timescales;
- how work may be managed in small sections or tasks;
- organisation of information and resources;
- reviews and modifications;
- suggestions for future ideas and improvements.

Full planning is vital to the success of the project you develop. Full planning will also allow you to evaluate your work more effectively.

Once you have planned the structure of your project, you will need to produce supporting materials. These may take any form, and the ultimate decision about what supporting materials your project needs is for you to decide. However, as a minimum, there should be some introductory materials, including help sheets if relevant, sheets for use during the lifetime of the project and an evaluation sheet.

You **must** submit all your preparatory work at the end of the unit. You can not complete the unit without this.

As well as planning your work in full, you should aim to complete a diary or log whilst you are working on the project. This diary or log should include a list of the day-to-day tasks you complete, plus a commentary on such issues as how you dealt with the problem or task, how you worked as a team member and how your use of ICT skills improved.

Once you have completed the project, you will need to report on how well the project ran, what were its strengths and weaknesses and how well you worked with others, either as members of your team or as clients of the project. Your report should also suggest improvements to the project. You should collect feedback from others in order to allow you to make informed comments about your project and the role you played.

At the end of the unit, you must hand in all of your work, as it will form the evidence for assessment of this unit.

The evidence **must** include:

- results of initial research into the organisation;
- the development of your project using project management tools;
- supporting material(s);
- a diary or log of activities carried out during the life of the project with continual evaluation of your response to the brief;
- a final report on the project as a whole and the part you played in planning and delivering the project, with particular emphasis on how well you worked as part of a team.

Make sure that all your work has your name, candidate number and centre number on it.

Briefs

Each brief may be carried out by you acting as a member of a team, so that the emphasis for 'working with others' becomes the other members of the team, or by you working on your own, in which case the emphasis for 'working with others' becomes the users or clients of the service provided as a response to the brief.

You should choose **one** of the following briefs to develop.

1 You have been asked to set up, run and facilitate an on-line chat room for students who share a common interest. The choice of area of common interest is your own, but should be one that will interest other students.

2 You have been asked to support the Network Manger by setting up a software help desk to operate within your learning establishment. You should plan to support all the main applications software on your network and also the most popular subject specific software. The means by which you choose to collect issues to which you then respond and the manner in which you respond is your decision.

3 Your Head of ICT has asked you to provide distance support for students studying a specific unit of ICT in the establishment to which you belong. The unit may be a skills unit or a topic unit, but should be of sufficient length for you to provide meaningful support in the response to specific issues raised by students as they study the unit. You should negotiate with your Head of ICT to decide on a teaching unit that you will support and the nature of support that you will provide.

At the end of this unit, you need to hand in all your work as it will form the evidence for assessment of this unit. This evidence needs to include:

- preparatory research;
- your project management plan and any modifications to your plan;
- continual evaluation of your response to the brief;
- diary/log of development of your ICT skills;
- finished project in response to the brief.

Make sure that all your work has your name, candidate number and centre number on it.

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APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY
Unit 15: Software Development

G054/CASE STUDY

Pre-Release Case Study Material and Tasks

PRE-RELEASE TASKS – INSTRUCTIONS FOR CANDIDATES

Read the attached case study and these instructions carefully. Carry out some research of your own so that you understand the principles of software development then carry out the tasks detailed below.

There are **two** types of task. In **Task 1**, you will produce notes that will help you to answer questions in the examination for this unit. The other tasks will be marked and will contribute up to **30** of the **100** marks available for this unit. Make sure each piece of work has a suitable label or heading, e.g. **Task 2: Context Diagram**.

You should produce your reports and diagrams on a computer if possible.

You will need the work you produce when you take the examination for this unit.

Make sure that your name and centre number is on each page.

When you have completed the tasks you must sign and date an Authentication Statement. You must then ask your teacher to sign to confirm that the work is your own.

Task 1

Produce the following for *Cars When U Need*:

- a feasibility study;
- hardware specification;
- security, implementation and training strategies.

Task 2 – January 200x

Develop a Level 0 (Context Diagram) and Level 1 Data Flow Diagram (DFD) for the current system in use at *Cars When U Need*. The process starts when the customer advises the admin staff of the start date, duration and type of car and ends when the car is returned to the Car Yard.

Task 3 – January 200x

Develop an Entity Relationship Diagram and associated Data Dictionary for the proposed system.

Task 4 – January 200x

Produce Structured English for the decision table given in **Appendix Two**.

Task 5 – January 200x

Part of the Output Specification for a proposed system is the design of screen report layouts. Produce **two** screen report layouts for the proposed system for *Cars When U Need*.

Cars When U Need

Cars When U Need is a small, family-run business in the North-West of England. The main function of the business is to hire cars to customers. The business has a range of different types of cars which can be hired for periods from **one** day to **four** weeks. Most of the customers of *Cars When U Need* are from the local area and many are regular customers.

The Head Office of the business is in the centre of a town where customers can call in or ring to arrange the hire of a car. The Managing Director is based at this office, as is the main administration office. The cars are kept at a yard which is situated in a purpose-built industrial area on the outskirts of the town.

At the moment all communication between the **two** sites is by phone, fax or by a member of staff driving between the **two** sites delivering the information by hand. This information may be hard copy or on a floppy disc.

There are **two** desktop computers at Head office. **One** computer is in the main admin office and is used to:

- keep records of all the bookings made by customers;
- print out the invoices, which are given to the customers;
- record any payments that are received.

The other computer is in the Managing Director's office. This computer is used for keeping staff personnel records and recording the company accounts. Neither of these computers have any form of security, leaving the information stored upon them open to misuse.

There is **one** desktop computer at the Car Yard. This computer is situated in the office and is supposed to be used to keep records about the cars, but there is no formal method for keeping these records and the computer is very rarely used. Most of the information is stored on hard copy and pinned to the notice board on the wall in this office. This method of storing the information is very disorganised and information is often lost or misplaced.

The founder and present Managing Director of *Cars When U Need* has just retired and his daughter has taken his place. She is very computer literate and wants to modernise the business and the working practices. She is very concerned about the poor security of the information held on the computers currently used in the business. Her other concern is that the computers do not have Internet access. The Managing Director has asked that the new system have full Internet access with e-mail communication, both internal to the business and externally. In the future it is hoped that the business would develop a website.

It is very important that the **two** sites be in touch with each other, as there have been instances in the past when cars have been 'double booked', leading to customer dissatisfaction. There are other problems that need to be solved by the new system. The main ones are:

- cars being off the road for repairs but still being 'booked out' to customers;
- cars being off the road for servicing but still being 'booked out' to customers.

The new Managing Director would also like to be able to produce reports detailing the bookings for each car in the fleet and the amount of revenue each one brings to the business.

She has also asked that the software, which is used throughout the company, be standardised. At present the offices use different software packages which has proved to be a problem when information and data has to be shared.

It is hoped that the new computer system would solve these problems. The staff who will be using the new system have very few ICT skills and so will need to be fully trained in order to use the new system.

The Managing Director has asked that Head Office have **five** computers, which must be linked, and the Car Yard have **three**; these should also be linked. The Managing Director would also like a laptop computer as she intends to expand the business into the rest of the North-West of England. This laptop must be able to access the Internet and, when she is working in the Head Office, must be able to share information and files with the rest of the business. The new Managing Director also wants to upgrade the peripherals which are currently used by the business. She has heard that files and information can be transferred between the sites through the use of the Internet and feels that this would be an appropriate method for her business.

The Managing Director has also asked that a website be developed where customers can book the cars and receive confirmation of their booking.

The new system must be implemented within **twenty** weeks and the budget for the hardware and software is £40 000.

Appendix 1

When a customer wishes to book a car, the following procedures take place within *Cars When U Need*.

- the customer advises the admin staff of the start date, duration and type of car;
- the admin staff enter the booking onto the booking system;
- the cost is worked out and the customer is given a booking reference and an invoice;
- the customer pays the invoice;
- the information about the booking is sent to the car yard;
- a record of the booking is made – this is done by hand;
- the customer goes to the car yard on the 1st day of the booking to collect the car;
- the customer returns the car on the final day of the booking;
- the cost of filling the car with fuel is calculated;
- the customer pays for any fuel;
- the car is returned into the car yard.

There are however **problems** with this procedure:

- cars being 'double booked';
- cars being off the road for repairs but still being 'booked out' to customers;
- cars being off the road for servicing but still being 'booked out' to customers.

The following **entities** should be used when developing the new system

CAR (**Car_Number**, Registration_Number, type, seats, cost)
CUSTOMER (**Customer_Number**, address, contact_Number)
BOOKING (**Booking_Number**, *Car_Number*, *Customer_Number* start_date, duration)
CAR_AVAILABILITY (**Availability_No**, *Car_Number*, serviced, repaired, mileage, last_service_date, valeted)

Key
Primary Keys are in **bold**
Foreign Keys are in *italics*

Appendix 2

The following simple decision table is used to check if a car needs to be serviced, repaired or valeted.

Conditions	Rule 1	Rule 2	Rule 3	Rule 4	Rule 5
Last service >= 8,000 miles	Y	N	N	N	N
Last service >= 6 months	N	Y	N	N	N
Dents/scratches	N	N	Y	N	N
Valeted >=5 hire periods	N	N	N	Y	N
Actions					
Service	X	X			
Repair			X		
Valeted				X	
No Action					X

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APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

Unit 15: Software Development

G054/TEST

Specimen Paper

Additional materials:
Pre-released material and tasks with candidate instructions
Candidate's pre-prepared materials

TIME 1 hour 30 minutes

Candidate Name	Centre Number	Candidate Number

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the spaces above.
- Write your answers, in blue or black ink, in the spaces provided on the question paper.
- Answer **all** the questions.
- Read each question carefully and make sure you know what you have to do before starting your answer.

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**.
- No marks will be awarded for using brand names of software packages or hardware.

Question number	For examiner's use only
Task 2	
Task 3	
Task 4	
Task 5	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
TOTAL	

Section A

This section relates to the case study *Cars When U Need*.

1 Describe the purpose of the proposed system.

[4]

2 Describe the functional requirements of the proposed system.

[3]

3 **One** of the process constraints, which should be considered when developing a feasibility study, is the budget given by the client.

Identify **two** other process constraints, which should be considered, giving **two** examples of each.

Constraint 1: _____ **[1]**

Example 1: _____

_____ **[1]**

Example 2: _____

_____ **[1]**

Constraint 2: _____ **[1]**

Example 1: _____

_____ **[1]**

Example 2: _____

_____ **[1]**

4 Describe **two** problems caused by the current system at *Cars When U Need*.

Problem 1: _____

_____

_____

_____ **[2]**

Problem 2: _____

_____

_____

_____ **[2]**

5 Describe **two** ways that the proposed system meets user requirements at *Cars When U Need*.

Way 1: _____

_____

_____

_____

_____ **[3]**

Way 2: _____

_____

_____

_____

_____ **[3]**

6 Interviewing is **one** method of investigation. Describe **two** other methods of investigation suitable for use with *Cars When U Need,* giving **two** reasons for each choice.

Method 1: _____ **[1]**

Reason 1: _____

_____ **[1]**

Reason 2: _____

_____ **[1]**

Method 2: _____ **[1]**

Reason 1: _____

_____ **[1]**

Reason 2: _____

_____ **[1]**

7 Different levels of access to the new system are required.

Using examples from *Cars When U Need*, analyse the reasons for setting differing levels of access.

[9]

8 The new system will be introduced at *Cars When U Need* when the development is complete.

(a) Identify the most suitable method of implementation giving reasons for your choice.

Method: _____ **[1]**

Reason: _____

_____

_____ **[2]**

(b) Staff must be trained to use the new system. Identify and explain, with reasons, the training methods which could be used for the following groups of end-user.

(i) Managing Director: _____

_____

_____

_____

_____ **[3]**

(ii) Admin Staff: _____

_____

_____

_____

_____ **[3]**

(iii) Staff at the Car Yard: _____

_____

_____

_____

_____ **[3]**

Blank Page

Section B

You do not need the case study or your notes to answer these questions.

9 Following the development and implementation of a new system, user documentation is passed to the end-user.

(a) Identify **two** pieces of documentation which are passed to the end-user.

Item 1: _____ **[1]**

Item 2: _____ **[1]**

(b) Explain how each piece of documentation may be used at a future time in the life of the system.

Item 1: _____

_____

_____ **[2]**

Item 2: _____

_____

_____ **[2]**

10 During the development of a new system, a physical design specification is developed.

(a) Identify **two** of the component parts of the software specification part of the physical design specification.

Part 1: _____ **[1]**

Part 2: _____ **[1]**

(b) Identify **two** of the component parts of the input specification part of the physical design specification.

Part 1: _____ **[1]**

Part 2: _____ **[1]**

11 Explain why it is important to involve the end-user during the investigation and analysis stages of the system's life cycle.

[5]

12 When developing a software system, it is possible to use an off-the-shelf software package customised to meet the needs of the end-user or to write a bespoke software package. Explain the advantages and disadvantages of using a bespoke software package rather than an off-the-shelf package.

[5]

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APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

Unit 15: Software Development

G054/MS

Mark Scheme

There are **100** marks available for this test. They are allocated as follows:

- Tasks 2, 3, 4 and 5 **30**
- Section A of the test paper **50**
- Section B of the test paper **20**

Task 2 (10 marks)

See example DFD

1 mark each for:

- Consistency of symbols
- External entity customer identified
- Process and associated links/data stores (up to 8 marks)

Task 3 (10 marks)

1 mark for consistency

Up to 3 marks for each data dictionary for CAR, CUSTOMER, BOOKING

Marks for:

- Correct relationships defined
- Format and length of attribute fields
- Correct identification of Primary and Foreign keys

Task 4 (5 marks)

1 mark for consistency of syntax

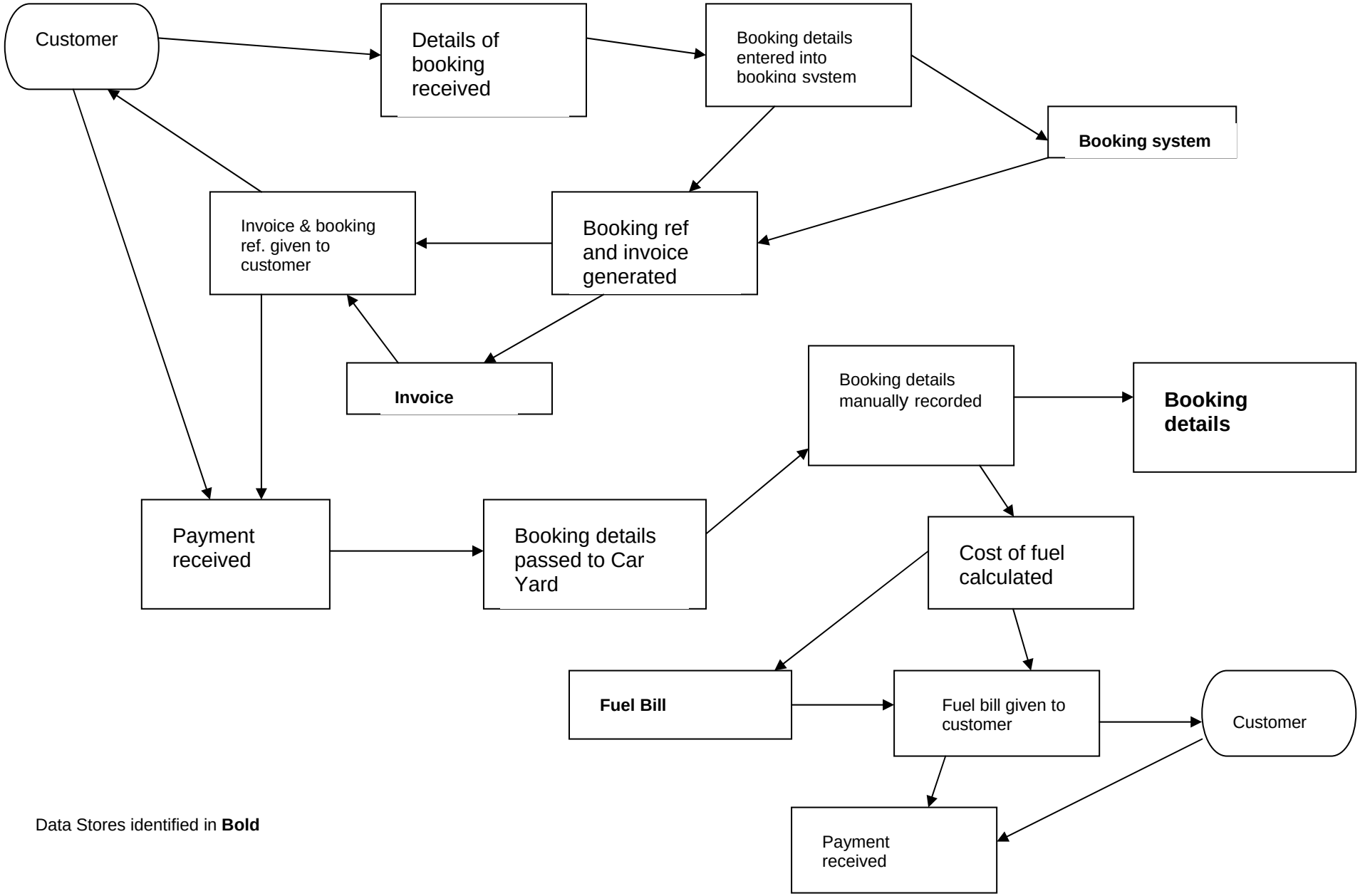
1 mark for each correct outcome of condition

```
Get Car Record
        If last service >= 8000 miles or >= 6 months
                Do Service
Else
        If dents or scratches = Yes
                Do Repair
Else
        If Valeted >= 5 hire periods
                Do valet
Else
                No Action
          EndIf
          EndIf
EndIf
```

Task 5 (5 marks)

1 mark each for:

- Consistent style of the two screen reports
- Use of colour/white space/layout/font
- layout appropriate for end-user
- logical order of information on the screen layout
- all data/information shown is appropriate and fit for purpose



Data Stores identified in **Bold**

Question	Answer	AO	Mark
1	*Four from:* • to solve the identified problems in CWUN; • example of problems; • to produce reports as required by the client; • example of report; • to improve communication between sites; • to standardise software in the company; • to improve sharing of data and files; • to increase security of data in the company; • company accounts/staff records.	AO2	**4x1**
2	*Three from:* • to keep records of all bookings made by customers; • to calculate invoices; • to print invoices; • to keep a database of all customers, cars, bookings; • to record payments received/accounts; • to produce reports on cars/revenue each brings to CWUN.	AO2	**3x1**
3	*Two from:* • development time (1): *(two from)* – the client may require the system for a particular date/event (1); – in CWUN the system should be developed within 20 weeks (1); • hardware choice (1): *(two from)* – the client may request a particular hardware platform (1); – in CWUN the MD has requested a laptop (1); – in CWUN the MD has requested that all peripherals should be upgraded (1); • software choice (1): *(two from)* – the client may request a particular software package (1); – in CWUN the MD has requested that the software be standardised throughout the company (1); – in CWUN the MD has requested no particular software (1).	AO2	**2x3**

Question	Answer	AO	Mark
4	*Two from:* • lack of communication (1) between the two sites (1); • information is on hard copy (1); information being lost/misplaced (1); • cars are being 'double-booked' (1); leading to customer dissatisfaction (1); • cars are off the road for repairs/servicing/valeting (1); yet still being booked out to customers (1).	AO2	**2x2**
5	*Two from:* • increased security (1) for keeping staff personnel records (1) and company accounts (1); • Internet access (1) improve communication (1) between the two sites (1); • the use of e-mail (1) for internal communication (1) and external communication (1); • ability to produce reports (1) plus two example of reports(1+1).	AO2	**2x3**
6	*Two from:* • observation (1): *(two from)* – used with Admin staff/Car Yard staff (1); – observing someone doing their job is better than asking someone to describe it (1); – by observing nothing is forgotten (1); – can identify any delays in processing data/information (1); – can see working practices (1); • questionnaires (1): *(two from)* – used with all staff (1); – is confidential/ anonymous (1); – does not necessarily get the information required (1); – generally very low response rates (1); – cheaper than interviewing as less time needed (1); – questionnaires need to be designed carefully with no ambiguity (1); • document analysis (1): *(two from)* – most of the problems with CWUN are concerned with information/data (1); – useful when developing a system to convert manual to computerised (1); – to see format/ layout (1); – to ensure consistency (1); – good strategy for obtaining factual information (1).	AO1	**2x3**

Question	Answer	AO	Mark
7	*Nine from:* • MD (1) will require access to all information (1) to ensure she has full 'picture' (1) of what is going on in CWUN (1) Personnel records (1) need to be kept confidential (1) DPA (1) only the MD and staff member can see their record (1); • admin staff (1) will require access to booking data (1) customer account data (1) inputting/accessing customer details (1) car 'stock'/availability (1) need to be able to produce invoices (1) take bookings (1); • car yard staff (1) will require access to car records (1) checking cars for service/valeting/repairs (1) booking data (1) ensure that cars are ready for customers to collect (1) return data (1) to ensure cars are available (1).	AO2	**9x1**
8(a)	*One from:* • **Phased** (1) there are 2 sites – can implement system in Admin offices, ensure that Admin sub-system is correct, then move onto Car Yard where most data/information required is reliant on Admin (2); • **Parallel** (1) run manual and new system in parallel means more work for Admin/Car Yard staff, ensures that the new system is running as required and if there are any problems with the new system running of the company will not be affected (2).	AO3	**1+2**
8(b)	**MD** *Three from:* • on site; • one-to-one training; • requires training on complete system; • needs to 'fit in' with MD schedule; • already computer literate; • only needs training on the new system. **Admin Staff** *Three from:* • on-site; • group training; • using system once installed; • may need to teach basic computer skills; • revision of skills for those with some computer skills; • need training whilst manual system is still running; • only need training on part of the system applicable to the Admin staff; • some Admin staff may need to go to a training provider; • learn basic software manipulation skills.	AO4	**2x3**

Question	Answer	AO	Mark
8(b) cont	**Car Yard Staff** *Three from:* • on-site; • group training; • only need to train Car Yard staff who will be using the system; • need to train only on system used at Car Yard; • off site training provider; • may need basic computer skills; • may need to do training need analysis; • may be advantage to train one member of staff on Admin system; • to ensure total understanding of whole booking system; • knowledge can then be disseminated to other Car Yard staff.	AO4	**3**
9(a)	*Two from:* • detailed program specifications; • recovery procedures; • operating procedures; • user manuals; • test plans, data and logs; • security details; • version details.	AO1	**2x1**
9(b)	*Two from above list explained, for example:* **Test Plans, Data and Logs** *Two from:* • if there is a problem with the system, able to see what testing was completed; • expected vs actual results; • can see remedial action taken. **User Manuals** *Two from:* • if any part of the system is 'upgraded' only relevant part of user manual needs to be updated; • can be used to train new staff; • can also be referred to if a staff member changes job role. *[must relate to answer given in 9(a)(i)]*	AO1	**2x2**
10(a)	*Two from:* • outline program specifications; • system flowcharts; • file organisation; • access methods; • error messages; • screen and report layouts.	AO1	**2x1**

Question	Answer	AO	Mark
10(b)	*Two from:* • data sources; • methods of data capture; • validation methods; • data input forms/screen layouts; • verification methods.	AO1	**2x1**
11	*Five from:* • end-user will define what they want from the new system; • following investigation the analyst may feel that these are not feasible; • in consultation with the end-user; • an alternative requirement list could be developed; • analyst must check all inputs/ outputs with user; • to ensure that the reports are fit for purpose; • if consultation is not done; • the system may not fulfil the needs of the end-users; • may be not useful for the company; • not used; • waste of money/time.	AO4	**5x1**
12	*Five from:* **[Advantages]** • written specifically for needs of company; • has only the features they require; • nothing installed which is not going to be used; • fit for purpose; • may have smaller footprint; • will be totally compatible with current hardware/software; • company owns the software; • may be able to sell it; **[Disadvantages]** • more expensive to develop; • may need to contract work out; • time factor – will take longer to develop; • cannot always be confident that final product is free from bugs/errors. *[max. 4 marks for only advantages* or *disadvantages]*	AO4	**5x1**

Total mark available: 100

Analysis of marks:

Requirements:	
AO1	15
AO2	30
AO3	35
AO4	20
Check:	**100**

Totals:	
AO1	16
AO2	32
AO3	33
AO4	19
Check:	**100**

Differences:	
AO1	1
AO2	2
AO3	-2
AO4	-1

QN	Part	Mark	AO
Task 2		10	3
Task 3		10	3
Task 4		5	3
Task 5		5	3
1		4	2
2		3	2
3		6	2
4		4	2
5		6	2
6		6	1
7		9	2
8	a	3	3
	b	9	4
9	a	2	1
9	b	4	1
10	a	2	1
10	b	2	1
11		5	4
12		5	4
		100	

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APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY
Unit 16: Networking Solutions

G055/CASE STUDY

Pre-Release Case Study Material And Tasks

PRE-RELEASE TASKS – INSTRUCTIONS FOR CANDIDATES

Read the attached case study and these instructions carefully. Carry out some research of your own so that you understand:

- communications systems;
- network systems;

then carry out the tasks detailed below. There are **two** types of task. In **Task 1** you will produce notes that will help you to answer questions in the examination for this unit. The other tasks will be marked and will contribute up to **30** of the **100** marks available for this unit. Make sure each piece of work has a suitable label or heading, e.g. **Task 2: Network Requirements.**

You should produce your reports and diagrams on a computer if possible.

You will need the work you produce when you take the examination for this unit.

Make sure that your name and centre number is on each page.

When you have completed the tasks you must sign and date an Authentication Statement. You must then ask your teacher to sign to confirm that the work is your own.

Task 1

The Managing Director is involved in many meetings about the new network and needs notes that they can refer to throughout the different meetings.

Produce notes for the Managing Director on the following areas:

- the relative advantages and disadvantages of the following topologies:
  – bus;
  – ring;
  – star;
  – mesh;
  include labelled topology diagrams in your notes;
- an explanation of the advantages and disadvantages of networking the computers at Waldorf ICT;
- a comparison of peer-to-peer networks with client-server including a justified recommendation with reasons;
- a description of services and the advantages that each service can provide for the company;
- a description of the different types of software required to:
  – connect to the Internet;
  – view pages on the Internet;
  – assist with the use of the Internet – utility programs;
  – communicate on the Internet;
- the health and safety implications of the use of the computers by the staff.

Task 2

Produce a report for the Managing Director outlining the network requirements

The report should include:

- a clear diagram showing layout of work area, using the diagram supplied (see Figure 1) showing the position of computers, servers, cabling and any connecting equipment required;
- details of the network requirements including the reasons and purpose of the following:
  – types of cable to be used;
  – types of connectors to be used;
  – protocols;
  – any additional hardware required;
  – any additional software required;
  – a comparison between different network components.

[18]

Task 3

Write a memo to the Managing Director detailing:

- a description of services the network can provide to the employees and the Managing Director of Waldorf ICT, with explanations of how they can improve productivity.

[6]

Task 4

The Managing Director wants to connect Waldorf ICT to the Internet. Produce a report for the Managing Director outlining how this might be done.

The report needs to cover:

- an explanation of the different methods available to connect Waldorf ICT;
- the costs associated with using the Internet and;
- a cost comparison of different methods of connection.

[6]

Waldorf ICT

A company called Waldorf ICT produce, as part of their operations, computer-enhanced video clips for inclusion in television advertising and company promotional material for small businesses. They offer word-processing, spreadsheet and database facilities for small local businesses. They operate a mail-merge facility used by businesses nationwide and provide video clips for sale to the general public. Communication with clients is via post, telephone and by courier for urgently required items.

Waldorf ICT presently uses stand-alone computers all built to the same specification. Each office desk holds a computer and there are **ten** computers spread through **six** offices in the building (see Figure 1.) Printing facilities are provided in the reception office. Typically, staff save work to disk and take the disk to reception, load in the work and print. The only exception to this is the mail-merge computer. This computer and printer are only used for mail-merge runs.

Waldorf ICT is divided into **four** departments: Office, Video, Mail-Merge and ICT Services. Staff usually work within **one** department but are expected to be able to work in any department at a time of crisis. The workspace is open plan. Staff work at a desk and only meet as a department for department meetings.

All the computers run the same applications software and they are all capable of being used for enhancing video clips. When a video clip is produced it is written to CD and posted to the client.

Waldorf ICT is seeking to expand its connectivity, both in the building and with the outside world. You have been asked to produce reports and notes for the Managing Director as they decide on the ICT expansion of Waldorf's network.

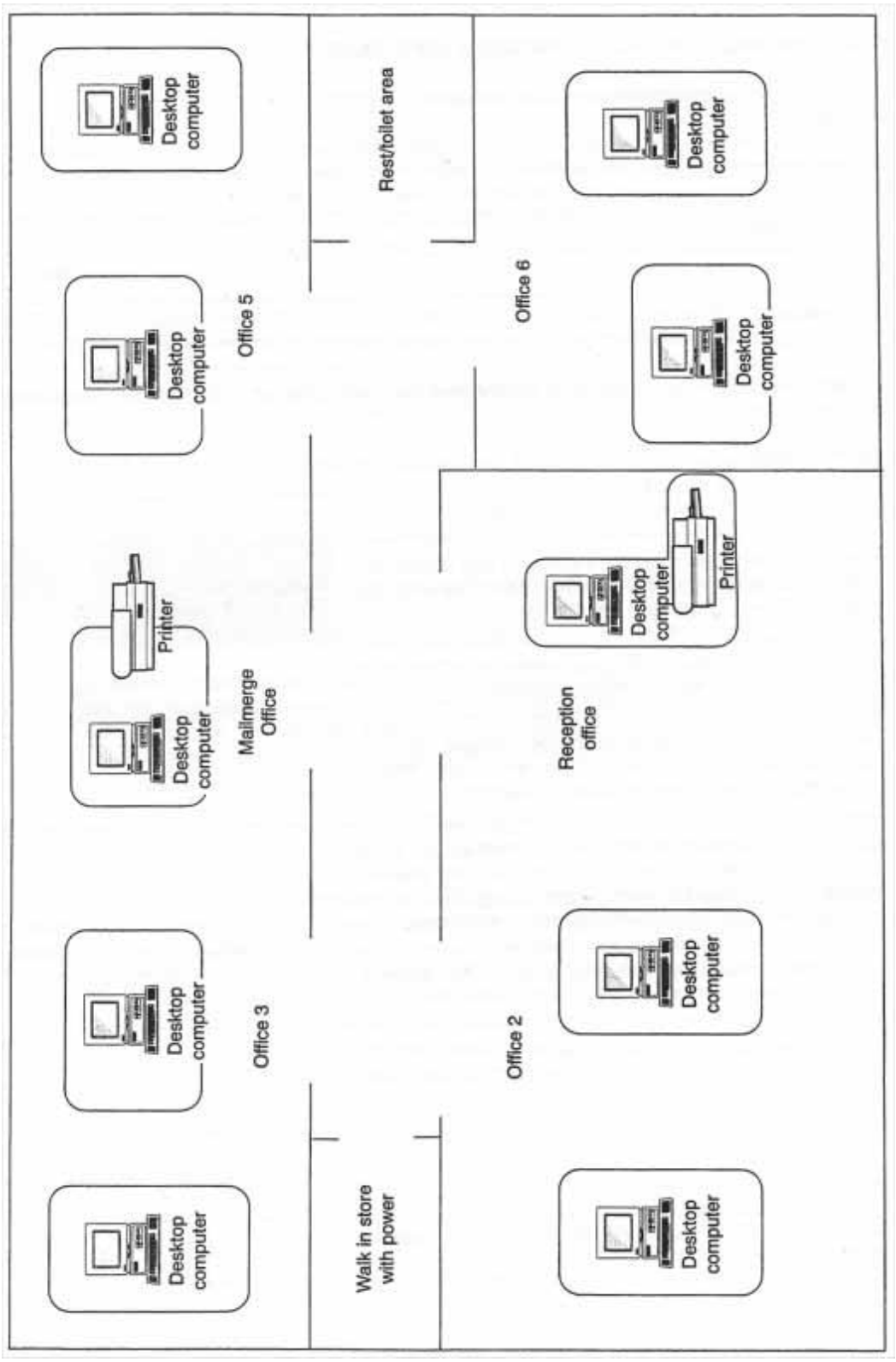

Figure 1

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Unit 16: Networking Solutions

Candidate name	
Candidate number	
Centre number	

Authentication Statement

The material I am taking into the examination is my own work.

(This must be signed by the candidate and then confirmed by the teacher.)

Signature of Candidate_____ Date_____

Signature of Teacher_____ Date_____

Instructions for Centres

- The candidate's work must be attached to this sheet.
- It must be kept secure until it is returned to the candidate at the start of the examination.
- At the end of the examination the work must be submitted to OCR inside the Question Paper.

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G055/TEST

Specimen Paper

Additional materials:

Pre-released material and tasks with candidate instructions

Candidate's pre-prepared materials

TIME 1 hour 30 minutes

Candidate Name	Centre Number	Candidate Number

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the spaces above.
- Write your answers, in blue or black ink, in the spaces provided on the question paper.
- Answer **all** the questions.
- Read each question carefully and make sure you know what you have to do before starting your answer.

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**.
- No marks will be awarded for using brand names of software packages or hardware.

Question number	For examiner's use only
Task 2	
Task 3	
Task 4	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
TOTAL	

Section A

This section relates to the case study and tasks on Waldorf ICT

1 **Two** of the options available to Waldorf ICT are a star or a bus network topology.

(a) Use a simple diagram to show each topology. Label **three** key features on each diagram.

(i) Star topology.

[4]

(ii) Bus topology.

[4]

1 **(b)** Explain why a star network topology is recommended by comparing the advantages and disadvantages of a star topology and a bus topology.

[6]

2 **(a)** Describe **two** advantages to the company of networking the computers.

Advantage 1:

[2]

Advantage 2:

[2]

2 **(b)** Describe **two** disadvantages to the company of networking the computers.

Disadvantage 1: _____

_____

_____ **[2]**

Disadvantage 2: _____

_____

_____ **[2]**

3 Waldorf ICT has the choice of a peer-to-peer network or a client-server network.

Identify which type of network is most appropriate and give reasons for your choice.

Type of network: _____

Reasons: _____

_____

_____

_____

_____

_____

_____ **[4]**

4 Before Waldorf ICT connects its network to the Internet, the Managing Director wants to know what it can offer the company.

Describe **two** services the Internet will provide to the company and its employees and, for each service, state why the company should use it.

Service 1: _____

_____

_____

_____ **[2]**

Service 2: _____

_____

_____

_____ **[2]**

5 Waldorf ICT is considering connecting its WAN to the Internet. **Two** methods of connecting the network to the Internet are dial-up modem and broadband.

(a) Explain each of the following methods of connection.

(i) Dial-up: _____

_____

_____

_____ **[2]**

(ii) Broadband: _____

_____

_____

_____ **[2]**

5 **(b)** Identify **two** additional costs that connecting the network to the Internet will incur.

Cost 1: _____

_____ **[1]**

Cost 2: _____

_____ **[1]**

(c) Waldorf ICT has decided to implement a broadband connection to the Internet. Describe **one** reason why a broadband connection is better than a dial-up connection for Waldorf ICT.

_____

_____

_____ **[2]**

6 When Waldorf ICT connects its Local Area Network (LAN) to the Internet, additional software will be required.

Identify **two** pieces of software that will be required for the employees to make use of the Internet and, for each, give an example of its use.

Software 1: _____

Example of Use: _____

_____

_____ **[2]**

Software 2: _____

Example of Use: _____

_____

_____ **[2]**

7 The Managing Director is concerned about the health and safety risks associated with computer use.

(a) Identify **two** health risks associated with the use of computers and, for each, give a solution that will minimise the risk.

Health Risk 1: _____

Solution: _____

_____

_____ **[2]**

Health Risk 2: _____

Solution: _____

_____

_____ **[2]**

(b) Identify **two** safety risks associated with the use of computers and, for each, give a solution that will minimise the risk.

Safety Risk 1: _____

Solution: _____

_____

_____ **[2]**

Safety Risk 2: _____

Solution: _____

_____

_____ **[2]**

Section B

8 When referring to network topologies, the terms physical and logical topology can be used.

What is the difference between a physical and a logical topology?

_____

_____

_____

_____ **[2]**

9 A company has many different departments and wishes to implement a Virtual Local Area Network (VLAN) on its network.

Describe **two** advantages of implementing a VLAN.

Advantage 1: _____

_____

_____

_____ **[2]**

Advantage 2: _____

_____

_____

_____ **[2]**

10 A network contains a hub. There are **two** types of hubs – active and passive hubs.

Describe **two** differences between an active and a passive hub.

Difference 1: _____

_____

_____

_____ **[2]**

Difference 2: _____

_____

_____

_____ **[2]**

11 **One** of the protocols that might be used when computers communicate is the HTTP protocol.

(a) What does HTTP stand for? _____

_____ **[1]**

(b) Identify a situation where the HTTP protocol is most likely to be used. _____

_____

_____ **[1]**

12 The Internet Protocol (IP) is **one** of the protocols used to connect computers together.

(a) Describe what is meant by an IP address?

_____

_____

_____

_____ **[2]**

(b) In the IP header, what is contained in the Time To Live (TTL) section? _____

_____ **[1]**

(c) How many IP address classes are there? _____

_____ **[1]**

(d) Convert the following IP address into its binary equivalent: 128.8.74.1

Answer: _____ **[4]**

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G055/MS

Mark Scheme

Pre Release Material – 30 Marks

Task 2

Network Diagram

Any **seven** from:

- Server in secure location (1)
- Printer server (1)
- Mail server (1)
- Proxy Server (1)
- Applications Server (1)
- Patch panel (1)
- Wireless device (1)
- Router (1)
- Hub/Switch (1)
- Extra Printer (1)
- Scanner (1)
- Video Input device (1)
- Extra PCs (1)

[Max 7]

Cable and Connector Requirements

- Matching cable and connector (1)
- Justification of cable (1)
- Justification of connector (1)

[Max 3]

Additional Equipment and Reason

Four pieces of additional equipment with a reason why each piece of hardware is required (4)

Two pieces of additional software identified (2)

Reason why additional software required (2)

[Max 8]

Task 3

- Description of **three** services provided by the new network (3)
- Different explanation of how the service can improve productivity (3)

[Max 6]

Task 4

- Identification of **two** methods of linking to Internet (2)
- Description of **two** methods of linking to Internet (2)
- Appropriate costs for each method identified (2)

[Max 6]

Question	Answer	AO	Mark
1(a)	*Four each from:* • **Star** topology diagram showing: – hub at centre; – server; – workstations/nodes; – printers; –hub/switch; • **Bus** topology diagram showing: – terminators; – workstations/nodes spread along cable; – printers; – server.	AO1	**4x2**
1(b)	*Three from:* • individual cable from hub/switch (1) on star greater cost of cabling (1) but if broken only that station affected (1); • Star network - central hub breaks whole network goes down (1); • Star network is easier to troubleshoot and identify problems (1); • Star network is easier to add/remove devices (1); • Bus network cable shared for all communication (1) therefore slower when network is busy (1) also more collisions (1); • Bus network – if single cable broken whole network goes down (1); • Bus network – machine not working can affect network (1). *[2 marks for each comparison]*	AO4	**6**
2(a)	*Two from:* • share hardware (1) printers can be used from any machine (1); • share software (1) all software loaded on all machines (1); • share files (1) many people work on same project and file (1); • central backup (1) do not have to worry about individual backup (1); • communication (1) between users using email (1); • centralised control (1) monitoring of use (1); • centralised virus checking (1) centralised update of virus checking (1). *[one mark for identification, additional mark for description]*	AO2	**2x2**

Question	Answer	AO	Mark
2(b)	*Two from:* • cost of setup/cabling (1) need additional components/allow example (1); • maintenance cost (1) need support (1); • greater security risk (1) access to other computers from one (1); • loss of speed due to network traffic (1) slows down with large video files (1); • spread of viruses (1) from machine to machine (1); • reliance on specific hardware(1), e.g. server/hub (1); • DNA cost only. *[one mark for identification, additional mark for description]*	AO2	**2x2**
3	*Two reasons from:* • **peer-to-peer:** – individuality of machines maintained (1) each machine specific to user (1); – no additional costs of equipment (1), e.g. central server (1); – control with the user (1) no centralised admin (1); • **client-server:** – centralised control (1) less maintenance (1); – conformity of machines (1) recognisable to any user (1); – centralised backup (1) users do not have to remember (1).	AO4	**2x2**
4	*Two from:* • communicate faster with customers (1) send and receive files (1); • research (1) find out information on the web (1); • transfer large files (1) reduce need for courier/writing to CD (1).	AO3	**2x2**
5(a)	*Two each from:* • Dial-up: – POTS; – modem required; – phone in use whilst on line; – limited speed; – allow example; • Broadband: – always on; – can use phone and Internet at same time; – high speed; – allow example.	AO3	**2x2**
5(b)	*Two from:* • subscription charge (1); • extra equipment (1) – allows examples; • extra software – filter/logging software (1).	AO3	**2x1**

Question	Answer	AO	Mark
5(c)	*One from:* • always on (1) no need to dial up (1); • can use phone line to talk at same time (1) no engaged (1); • high speed (1) no delay in transfer (1). *[one mark for identification, additional mark for description]*	AO4	**2**
6	*Two from:* • chat (1) – pseudo real time communication (1); • e-mail (1) – communicating via messages (1); • discussion board (1) – progressive discussion (1); • e-commerce (1) – selling product (1); • information (1) – documents and pictures on line (1); • any other suitable.	AO3	**2x2**
7(a)	*Two from:* • seating (1) – adjustable (1); • ventilation/heat (1) – air-conditioning (1); • desk space (1) – for key board and mouse map with wrist rest on desk top (1); • position/size of monitor (1) – line of sight should be either downwards or horizontal (1). *[one mark for identification, additional mark for solution, solution must match problem, examples given]*	AO2	**2x2**
7(b)	*Two from:* • cabling (1) – tripping up/electrocution (1); • unstable surface (1) monitor fall off (1); • liquids (1) electrocution (1). *[one mark for identification, additional mark for reason]*	AO2	**2x2**
8	*Two from:* • logical paper based (1); • physical = actual (1); • London underground vs real underground (or similar analogy) (2).	AO2	**2**
9	*Two from:* • allows load balancing (1) network traffic balanced for better performance (1); • grouping by department (1) logical instead of physical groups (1); • change or add machines to groups (1) allocate resources to VLAN groups. *[one mark for identification, additional mark for description]*	AO2	**2x2**

Question	Answer	AO	Mark
10	*Two from:* • active hub takes power from power supply to regenerate signal (1), passive hubs do not regenerate signal (1); • passive hubs split signal (1); • active hub extends cable length (1), passive hub does not (1); • only **two** hosts allowed per cable segment on a passive hub (1); • active hub can perform diagnostics on itself (1), passive cannot (1). *[one mark for difference identified, additional mark for being the correct way round]*	AO3	**2x2**
11(a)	HyperText Transfer Protocol CAO	AO2	**1**
11(b)	Internet/transferring files across the Internet CAO	AO2	**1**
12(a)	*Two from:* • unique address; • 32 bit numeric address (allow 128 bit); • **four** groups of **eight**; • contains country identifier; • identifies machine/node.	AO3	**2**
12(b)	*One from:* • how many hops packet can make; • how long to remain in the network; • when packet is to be discarded.	AO3	**1**
12(c)	**Five** CAO	AO3	**1**
12(d)	10000000 (1) 00001000 (1) 1001010 (1) 00000001 (1)	AO3	**4x1**

Total mark available: 100

Analysis of marks:

Requirements:	
AO1	15
AO2	30
AO3	35
AO4	20
Check:	**100**

Totals:	
AO1	15
AO2	30
AO3	35
AO4	20
Check:	**100**

Differences:	
AO1	0
AO2	0
AO3	0
AO4	0

QN	Part	Mark	AO
Task 2		7	1
		1	3
		2	4
		4	4
		2	3
		2	4
Task 3		6	2
Task 4		6	3
1	a	8	1
	b	6	4
2	a	4	2
	b	4	2
3		4	4
4		4	3
5	a	4	3
	b	2	3
	c	2	4
6		4	3
7	a	4	2
	b	4	2
8		2	2
9		4	2
10		4	3
11		1	2
		1	2
12	a	2	3
	b	1	3
	c	1	3
	d	4	3