OCR
RECOGNISING ACHIEVEMENT

GCE

Applied ICT

Advanced GCE **AS H515/H715**

Advanced Subsidiary GCE **AS H115/H315**

Mark Scheme for the Units

June 2009

H115/H315/MS/R/09

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of pupils of all ages and abilities. OCR qualifications include AS/A Levels, GCSEs, OCR Nationals, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

It is also responsible for developing new syllabuses to meet national requirements and the needs of students and teachers. OCR is a not-for-profit organisation; any surplus made is invested back into the establishment to help towards the development of qualifications and support which keep pace with the changing needs of today's society.

This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by Examiners. It does not indicate the details of the discussions which took place at an Examiners' meeting before marking commenced.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

© OCR 2009

Any enquiries about publications should be addressed to:

OCR Publications
PO Box 5050
Annesley
NOTTINGHAM
NG15 0DL

Telephone: 0870 770 6622
Facsimile: 01223 552610
E-mail: publications@ocr.org.uk

CONTENTS

Advanced GCE ICT (Double Award)(H715)

Advanced GCE ICT (H515)

Advanced Subsidiary GCE ICT (Double Award)(H315)

Advanced Subsidiary GCE ICT (H115)

MARK SCHEMES ON THE UNITS

G041 How organisations use ICT

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

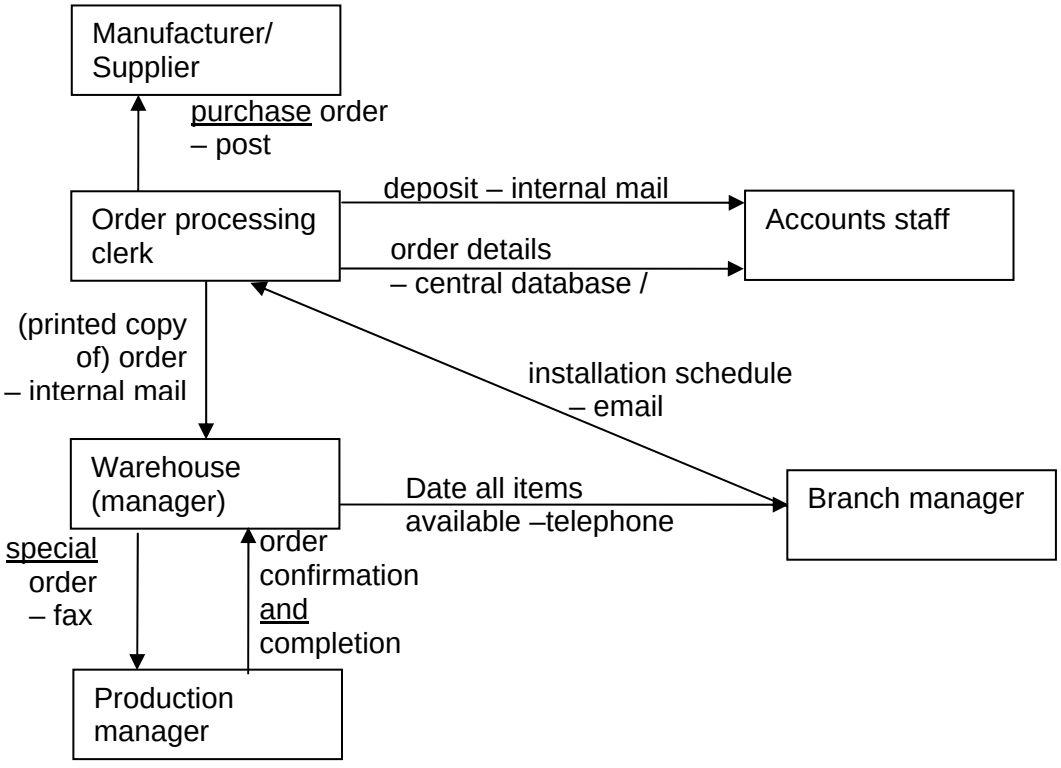
1 mark each for boxes labelled

- Order processing clerk
- Warehouse (manager)
- Accounts staff
- Production manager
- Branch manager
- Manufacturer

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 they 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/is incorrect but can be awarded if information is essentially correct but vague or incomplete.
- Labels should not be awarded marks if they are contained within the description of a process.
- If lines cross, mark labels as long as it is clear where each arrow goes
- Marks should only be awarded for labels that can be unambiguously linked to a single arrow.



[15]

Task 3

AO4 is assessed through this task.

AO4 Marks	**Guidance**
3	A strength and a weakness in the method(s) used identified or suggestions for improving own performance.
2	A strength or a weakness in the method(s) used identified.
1	Some comment made on the method(s) used.

The quality of written communication is assessed through this task.
Tiered response based on:

Coded	**Marks**	**Guidance**
H	9-12	Candidates will show a clear understanding of the task and include detailed explanations of possible improvements to the company's ICT systems, with both benefits **and** limitations. Examples are clearly applied to Bedrooms4U and its staff. The information will be presented in a structured and coherent form. There will be few if any errors in spelling, grammar and punctuation. Any technical terms will be used appropriately and correctly.
M	5-8	Candidates will show some understanding of the task and may include some explanations of possible improvements to the company's ICT systems, with either benefits **or** limitations. Some examples are applied to Bedrooms4U and its staff. The information will be presented in a structured format. There may be occasional errors in spelling, grammar and punctuation. Any technical terms will be mainly correct.
L	1-4	Candidates will demonstrate a limited understanding of the task. Information may be a list of points, with little or no explanations or application to Bedrooms4U. Information will be poorly expressed and there will be limited, if any, use of technical terms. Errors of grammar, punctuation and spelling may be intrusive.

NB - ICT systems not mobile communications

Not accept :
PDA, Blackberry, iPhones, mobiles (accept if linked to laptops for internet access), smart phones, Skype, instant messenger.

To include consideration of for example:
improvements

- connecting all sites in a wide area network (WAN) using leased lines
- provide warehouse / factory with broadband access to the Internet
- set up a virtual private network (VPN)/intranet
- link salespeople's' laptops to the Internet (via a mobile phone/wifi)

*accept multiple servers in head office/wireless networks

benefits

- all sites can access head office server remotely
- details of customers' requirements can be entered on SOP system from showroom
- reduces duplication of data entry and data entry errors
- salesperson can check details of stock and warn customer of possible delays
- warehouse manager can access orders on server
- ordering process quicker as less delays waiting for post/internal mail
- greater flexibility for staff/some staff could work from home

limitations

- greater risk of unauthorised access/viruses
- cost of leased lines
- increased network management may be required
- may require upgrading of head office server, which will cost money
- some staff may need training to use the system

Annotation:

- CS – acceptable response has been applied to case study
- P – identifies points
- E – identifies expansions/explanations
- + – identifies benefits
- - – identifies limitations

[15]

Section A

1 Any **one** of

- accounts (1) plus **four** of
  - keep records of all financial transactions **or** example, eg income received from sales
  - arrange payments using on-line banking
  - receive deposits
  - access order details on SOP system
  - enter amount of deposit
  - print invoices
  - post invoice to customer
  - notify HR when final payment received from customers
- HR (1) plus **four** of
  - advertising vacancies
  - sending out / receiving application forms
  - arranging interviews
  - drawing up contracts for successful applicants
  - keeping staff records
  - ensuring staff get correct wages/commission/leave entitlement
  - ensuring pension contributions/other benefits made and recorded
  - arrange for staff to attend training courses
  - keep records of training courses attended/qualifications gained

1 mark for job function plus 1 mark per point to max 4 for matching tasks **[5]**

2 Any **five** of

- runs a showroom
- manages a team of salespeople/installation engineers/admin assistants
- (meets with salesperson) to check design
- gives (salesperson) labour costs for installation
- checks availability of installation engineers
- checks availability of any contractors needed
- produces installation schedule
- emails installation schedule to order processing clerk

1 mark per point to max of 5 **[5]**

3 Any **one** of

- contractors (1) plus **two** of
  - brought in when required
  - receive purchase order from admin assistant
  - payment received from accounts staff
- carpet/curtain manufacturers (1) plus **two** of
  - purchase order generated } **or** (receives purchase
  - posted by order processing clerk } order from Bedrooms4U)
  - goods delivered to customer's address
  - by agreed delivery date
- approved supplier (1) plus **two** of
  - monthly purchase order
  - posted by warehouse manager
  - emergency orders
  - placed by telephone
  - payment received from accounts staff

1 mark for supplier plus 1 mark per point to max of 2 for matching interactions **[3]**

4 **(a)** Any **three** of

- length
- width
- position of windows
- size of windows
- position of doors
- size of doors

1 mark each to max of 3 **[3]**

(b) scale drawing created from measurements/dimensions (1)
furniture selected and positioned (1) from a library of icons (1)
material/finish/handles/internal fittings (1) and colour and design of carpets/curtains (1) selected from drop-down lists (1)
design rendered (1) to produce 3-D image (1) of finished bedroom on screen(1) **[5]**
1 mark per point to max of 5

(c) **(i)** quotation (including order form) (1) **[1]**

(ii) Any **three** of

- list of parts and costs generated
- costs added (to give total cost of parts)
- installation cost added to cost of parts
- VAT calculated/added

1 mark each to a max of 3 **[3]**

(d)

- emailed (to admin assistant)
- posted (to customer)

2 marks **[2]**

5 A description to a maximum of **10** from

hardware

- stand-alone computer (1st) barcode reader (1) laser printer (1)

software

- database (of stock) (1st) separate forms/screens (1) for adding and removing stock (1) able to produce reports/purchase orders (1)

input data

- product number/code (1st) by scanning barcode (1) to check stock level (1)
- quantity (added/removed) (1st) keyed in (1)

outputs

- (reports including) purchase order (1st) printed once a month (1)
- stock level (1st) checked when order received (1) and monthly (1) displayed on screen (1)

processes

- quantity added to no_in_stock field (1st) when new stock arrives (1)
- quantity deducted from no_in_stock field (1st) when goods removed (1)

To achieve maximum marks there must be at least one point from each section. **[10]**

6 (a) Any **two** benefits identified and explained

- increased productivity (1st) because computerised process is faster than manual (1)
- wages may be reduced (1st) because fewer staff are needed (1)
- the furniture will be of consistent quality (1st) once programmed computer follow instructions exactly the same each time (1)
- raw material/storage costs may be reduced (1st) because JIT manufacture possible (1) due to more predictable pace of production (1)
- 24 hour operation economically viable (1st) as less staff needed to work at night when wages higher (1)
- reduce waste (1st) less mistakes/human error (1)

Up to 2 marks each to max of 4 **[4]**

(b) Any **two** impacts identified and explained
eg

- some staff may lose jobs (1st) as fewer staff are needed (1)
- staff may need to undergo training (1st) to supervise production/maintain machines (1)
- opportunities for more skilled/higher paid jobs (1st) as staff needed to program/maintain machines (1)
- safer working environment (1) as don't have to operate dangerous machinery (1)
- staff may suffer stress (1) because of concerns over job security/increased automation (1)

[4]

Up to **two** marks each to max of 4

7 (a) (i) Electronic Communications Act (2000) **[1]**

(ii) It makes electronic signatures legally binding **[1]**

(b) Can be confident about encryption services used (1)
encryption keeps customers' personal and financial data secure (1)
because the providers of encryption services can be approved (1)
and entered in a register (1)
currently this is self-regulated (1)
but Act provides fallback to a statutory scheme if necessary (1)
1 mark per point to max of 3 **[3]**

Section B

8 **(a)** The provision of computer services within the organisation **[1]**

(b) Any **two** suitable tasks identified and described
eg
- obtaining and installing hardware (1) including on-going maintenance (1)
- obtaining and installing software (1) and upgrading it as necessary (1)
- managing networks (1) LAN and WAN (1)
- supporting ICT users (1) by providing a help desk (1)

Up to 2 marks each to max of 4 **[4]**

9 **(a)** Any **two** of
- availability of hotel rooms/accommodation
- cost of hotel rooms/accommodation
- additional information about accommodation, eg recent building work
- availability of flights/trains/ferries etc (need a means of transport, do not accept 'travel')
- cost of flights/trains/ferries etc (need a means of transport, do not accept 'travel')

1 mark each to max of 2 **[2]**

(b) Up to **two** of
- required destination
- choice of hotel/villa
- duration
- required dates
- number of adults
- number and ages of children
- names of all members of party
- special requirements, eg wheelchair assistance
- customer contact details
- method of payment
- passport details

Plus up to **two** of
- face to face
- from a paper booking form } or
- from an on-line booking form } booking form – 1 mark only
- by telephone
- by email
- by fax **[3]**

1 mark each to max 3
For maximum marks there must be at least one point from each section

10 **(a)** The internet is a global network (1) an intranet is a network within an organisation (1)
The internet can be accessed by anyone worldwide (1) and intranet can only be accessed by people who are part of the organisation/with a username and password (1) **[4]**

(b) Any **two** of
- to advertise company by setting up a company website (1) so that they can access a wider potential market (1)
- to sell goods using e-commerce (1) potentially increasing sales to a wider geographic area (1)
- to carry out research to find suppliers etc/check what competitors are doing (1) because this can be done simply using a search engine/access to large number of sites (1)
- to book travel by accessing airline/train company websites (1) which allows comparisons of prices/may be cheaper than other methods (1)
- external communication/feedback with customers/suppliers etc using email/discussion groups (1) which improves customer relations/allows company to know what customers want (1)

Up to 2 marks each to a max of 4 **[4]**

(c) Any **one** of
- to provide staff with access to information about the company (via a browser/standard interface) (1) so that staff are kept informed (1)
- to provide access to standard documents through a standard interface/from a single menu (1) so that staff do not have to waste time looking for what they need (1)
- to provide staff with access locally only to relevant websites by downloading them (1) so that sites load more quickly/less chance of staff browsing inappropriate sites(1)

Up to 2 marks each to a max of 2 **[2]**

G054 Software development

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

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

Task 2 (15 marks)

12 marks available for L1 DFD (See attached example)

1 mark available for identification of:
Consistency of symbols - C
External Entities (Customer **and** Office) identified - EE
Logical order of processes - L

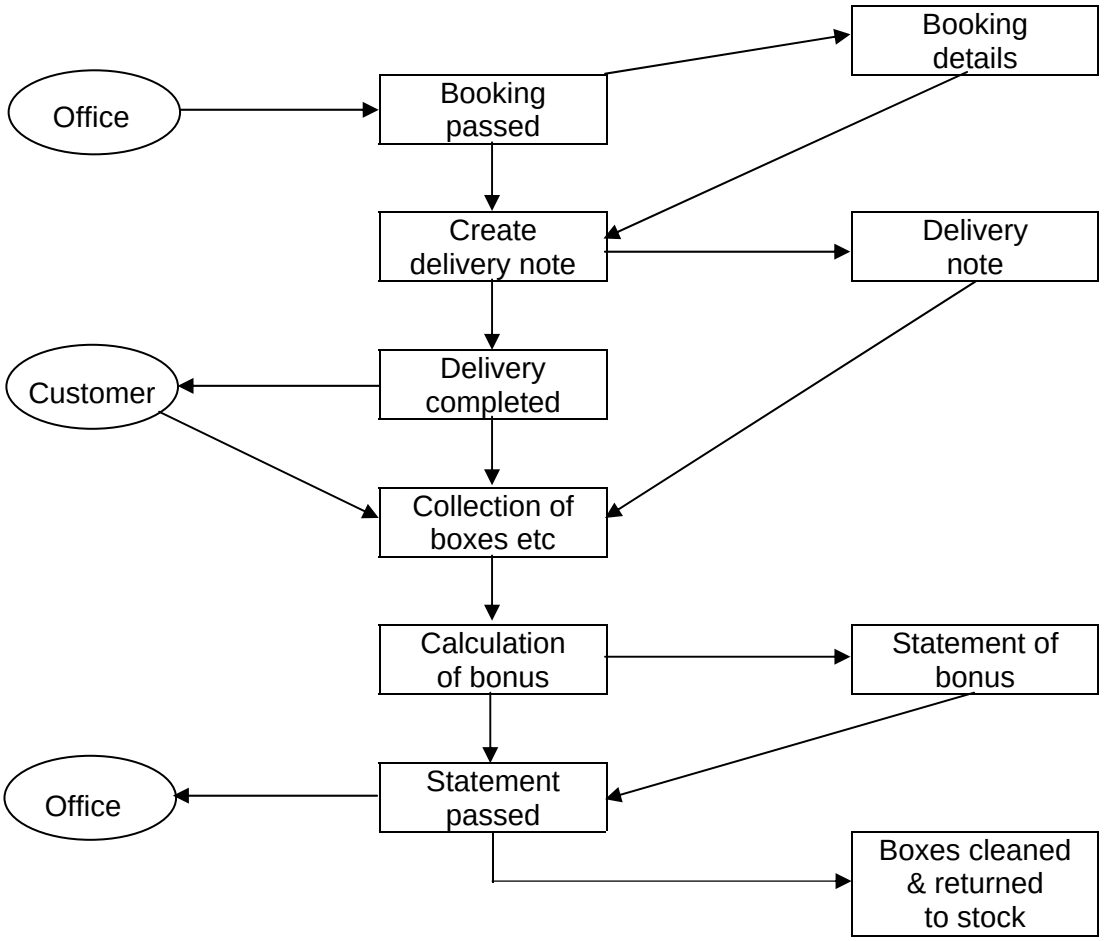
1 mark for each correct process - P (Max 7)
1 mark for data stores linked to correct process – D (Max 3)

Evaluation - 3 marks available

Mark	
1	Some comment on method(s) used to develop DFD
2	A strength/weakness in method(s) used identified
3	A strength and weakness in method(s) used identified

Task 3 (10 marks)
For each of the entities:
BOOKING, CUSTOMER, CONTAINER, DELIVERY, STAFF
1 mark each for:
- Correct identification of Primary and Foreign keys
- Correct relationships and which end defined.

Task 2


Booking details
Office
Booking passed
Create delivery note
Delivery note
Customer
Delivery completed
Collection of boxes etc
Calculation of bonus
Statement of bonus
Office
Statement passed
Boxes cleaned & returned to stock

Name	**Booking**		
Description	The table that contains all general information about a booking		
Aliases	None		
Relationships	**Type**	**Which end?**	
Customer	M:1	Many	
Container	M:1	Many	
Delivery	1:M	One	
Attributes			
Name	**Type/Format**	**Length**	**Key**
Booking_Number	Text/string	30	Primary Key
Cust_ID	Integer	10	Foreign Key
Container_Number	Integer	5	Foreign Key

Name	**Customer**		
Description	The table that contains all general information about a customer		
Aliases	None		
Relationships	**Type**	**Which end?**	
Booking	1:M	One	
Atrributes			
Name	**Type/Format**	**Length**	**Key**
Cust_ID	Integer	10	Primary Key

Name	**Container**		
Description	The table that contains all general information about a recycling container or box		
Aliases	None		
Relationships	**Type**	**Which end?**	
Booking	1:M	One	
Attributes			
Name	**Type/Format**	**Length**	**Key**
Container_Number	Integer	5	Primary Key

Name	**Delivery**		
Description	The table that contains all general information about a delivery		
Aliases	None		
Relationships	**Type**	**Which end?**	
Booking	M:1	Many	
Staff	M:1	Many	
Attributes			
Name	**Type/Format**	**Length**	**Key**
Delivery_Number	Text/string	10	Primary Key
Booking_Number	Text/string	30	Primary Key
Staff_Number	Text/string	10	Primary Key

Name	**Staff**		
Description	The table that contains all general information about members of delivery staff		
Aliases	None		
Relationships	**Type**	**Which end?**	
Delivery	1:M	One	
Attributes			
Name	**Type/Format**	**Length**	**Key**
Staff_Number	Text/string	10	Primary Key

Task 4 (5 marks)
1 mark each for (Max 5):

- use of colour/font/white space
- logical order of information on screen
- clear space for customer details
- all data/information shown is appropriate (eg customer name, address, contact number, type of recycling container box/box) with no omissions/extra data required
- use of validation/drop down boxes/option boxes/radio buttons where appropriate
- calculation fields for type and weight of contents of recycling container/box, bonus due on each container/box
- total bonus due.

Section A

Note: RR = Rods Recycling

Question	Answer	Mark
1	**One of the purposes of the new system for Rods Recycling is to produce reports for the owner.**	
(a)	**Describe <u>two</u> other purposes of the new system.** *Any 2 from, max 2 per purpose:* To standardise software used in company (1) to improve sharing of stored information (1) To improve communication (1st) between head office and yard (1) To increase the security of information (1st) held on the computers in <u>head office</u> (1) To solve problems caused by the current system/example of problems given (1).	**[4]**
(b)	**Explain why it is important to clearly define the purpose of the new system for the owner of Rods Recycling.** *Any 3 from:* To ensure all problems in current system have been identified (1) To make sure all requirements of the new system have been defined (1) To act as a reference point (1) to ensure that the new system meets the requirements of RR (1) or the new system will not be appropriate for RR (1).	**[3]**
2	**Functional and non-functional requirements are defined during the development of the feasibility study.** **Explain, using examples from Rods Recycling, the following components of the feasibility study.**	
(i)	**Functional requirements** What the end-user wants the system to do (1) *Any 2 from:* To keep records/reports of all hires/bookings (made by customers) (1) To calculate recycling bonus <u>and</u> print statements for customers (1) To keep a database of customers, staff, container, bookings, delivery (1) (Must have at least 2 identified) To record payments/keep accounts (1) To produce reports, plus example (1).	**[3]**

Question	Answer	Mark
(ii)	**Non-functional requirements** The limitations (1) relating to response time/hardware/software/ programming language (1) *Any two from:* Operating system vendor to be the same as existing operating system (1) To include the current computers into the new network (1) To link the 2 computers at head office/to link the computer at the yard (1) To have 4 computers at head office (1) To have 3 computers at the yard (1).	**[4]**
3 (a)	**The owner of Rods Recycling has defined process constraints to be considered during the development of the feasibility study.** **Describe <u>one</u> hardware constraint that has been defined by Rods Recycling.** *Any 2 from:* To provide a laptop (1) so the owner of RR can work away from the office (1) The existing/3 computers (1) to be included in the new system (1).	**[2]**
(b) (i)	**Identify <u>one</u> process constraint, apart from hardware and software, that has been defined by Rods Recycling.** Time/budget (1)	**[1]**
(b) (ii)	**Describe how this has been defined by Rods Recycling** *The description MUST match the answer given to b(i)* Time: system to be implemented (1) within 25 weeks (1) Budget: £25,000 (1) for hardware <u>and</u> software (1)	**[2]**
4	**Some of the problems caused by the current system relate directly to the recycling boxes and containers.** **Describe the problems relating to the recycling boxes and containers.** *Max 2 per description, any 2 from:* Recycling boxes/containers being booked to customers (1st) but unavailable due to maintenance or cleaning (1) IT/ink cartridge collections being arranged (1st) but recycling containers not available (1) Number of recycling boxes/containers available (1st) being exceeded for bookings taken (1)	**[4]**

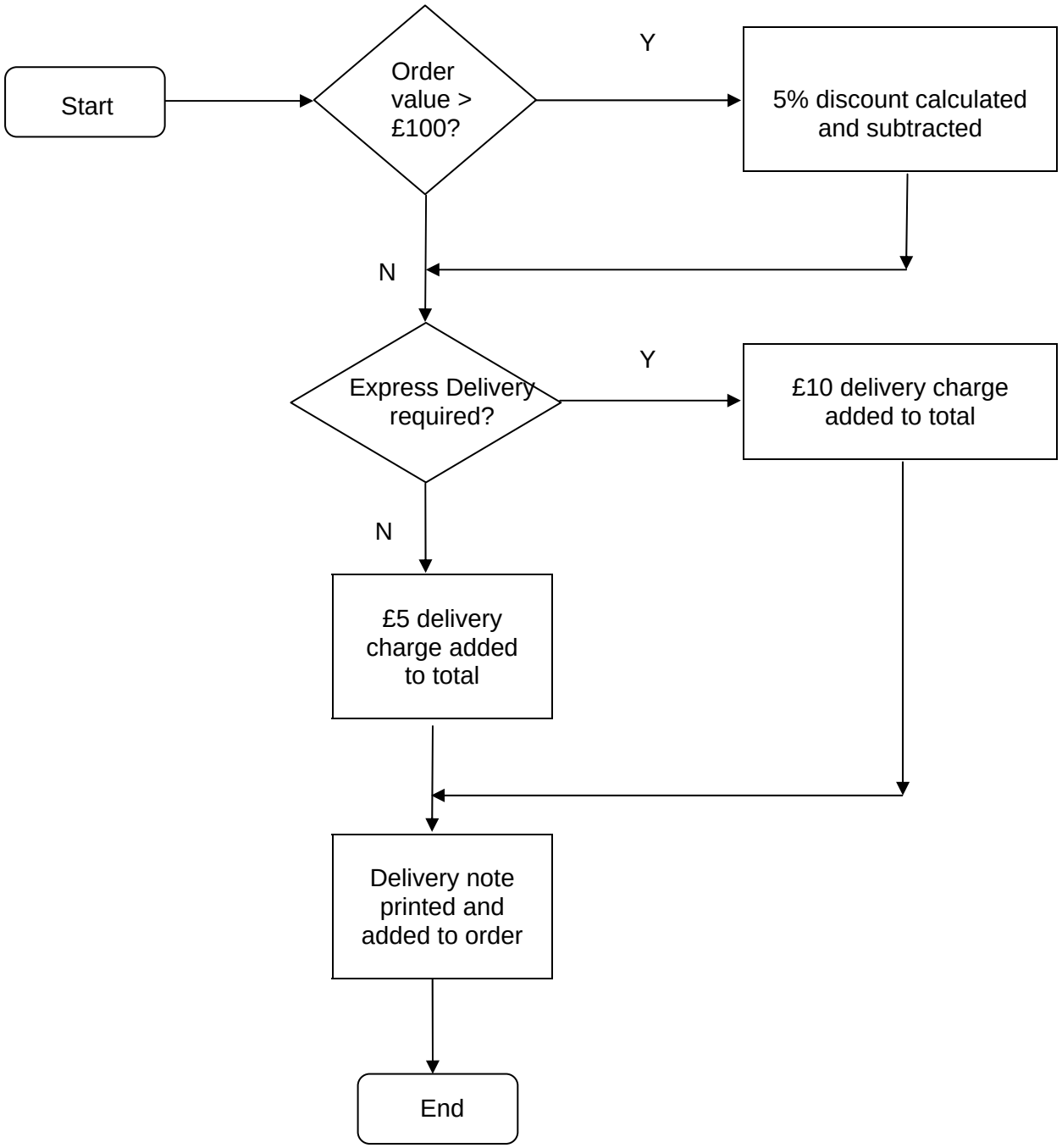
Question	Answer	Mark
5	**As part of the feasibility study, recommendations about software are made.** **Describe <u>two</u> advantages and <u>one</u> disadvantage of recommending off-the-shelf software for Rods Recycling.** *Max 2 per description* Advantages: any two from: for example: Support readily available (1) sources include discussion groups/web sites/books/training courses (1) Has been tested by many other users (1) less chance of errors being present (1) Patches will be released at no extra cost by vendor to solve any bugs found (1) Immediately available (1) from a range of sources/examples (1) Staff may be familiar with the user interface (1) less specific training will be needed (1). Cost with justification (1 mark only) Disadvantages: one from: for example: May not meet RR requirements exactly (1) may have to be edited and altered (1) Large memory footprint (1) may contain features that are not needed/used (1) Licenses may be expensive (1) may be purchase cost and licence for each workstation it is installed on (1).	**[6]**
6	**Statements for customers detailing their recycling bonuses, are produced at the administration office.** **Identify the most suitable device for this task, justifying your choice.** *1st mark for identification, up to 2 for justification* Printer (1st mark) eg keep paper copies of statements (1) need to be posted to customers/ customer needs a copy (1)	**[3]**
7	**Observation is one method that can be used when investigating the system at Rods Recycling.** **Explain why this method of investigation would be suitable for use at the yard.** *Any 3 from:* Observing someone doing their job 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)	**[3]**

Question	Answer	Mark
8	**Following development the new system will need to be implemented.** **Explain, the advantages and disadvantages to Rods Recycling of using the parallel implementation method.** **H (9 -12)** Candidates will show a clear understanding of the question and include **detailed** explanations of the advantages and disadvantages of the parallel implementation method. Examples will relate to RR. The information will be presented in a structured and coherent form. There will be few if any errors in spelling, grammar and punctuation. Technical terms will be used appropriately and correctly. **M (5 – 8)** Candidates will show an understanding of the question and include descriptions of the advantages and disadvantages of the parallel implementation method. Some examples will relate to RR. The information will be presented in a structured format. There may be occasional errors in spelling, grammar and punctuation. Technical terms will be mainly correct. **L (0 - 4)** Candidates will demonstrate a limited understanding of the question. Examples, if given, may not relate to RR. Information may be a list of points, with little or no explanations. Information will be poorly expressed and there will be a limited, if any, use of technical terms. Errors of grammar, punctuation and spelling may be intrusive. **Responses may include:** **Advantages** The results from the new system and old can be compared. The old system is not discarded until there is complete confidence in the new system. All processing can carry on if a problem is found with the new system. If the new system fails then RR will not lose any data. Ensures that the new system is running as required. Problems and remedial action to be taken will not affect RR. **Disadvantages** Staff at RR are doing the same task twice. Expensive in terms of staff time. Staff may not complete all their job roles as they are doing twice the amount of work for each task. Temporary staff may have to be employed by RR to assist - expensive in terms of costs.	**[12]**

Question	Answer	Mark
9	**The owner of Rods Recycling is concerned that the new system will be able to cope with the planned expansions of the business.** **Identify and explain the type of maintenance that will be needed.** *1st mark for identification, up to 2 for explanation* Adaptive (1st) The system works well (1) but expansion of RR means alterations are needed (1) to processes and data stored (1) Expansions included increased range of services (1) including water butts/wormeries/compost bins (1) No major changes to the system are required (1) the system meets the overall needs of RR (1)	**[3]**

Section B

Question	Answer	Mark
10	**During the design of a new system a physical design specification is developed.** **Identify two components of the software specification part of the physical design specification.** *2 from:* Outline program specification (1) System flowchart (1) File organisation (1) Access methods (1) Error messages (1) Screen and report layouts (1)	**[2]**
11	**Following the development and implementation of a new system, documentation is passed to the user.** **Explain why the following pieces of documentation should be passed to the user of a system.** **(i) Test plans and data logs** *Any 3 from:* Shows routines/procedures that were tested (1) Includes data used during tests (1) and outcomes of tests (1) Shows remedial action taken (1) Can include tests of interaction of procedures/routines (1) If anything goes wrong with system can be referred to (1) to see if error has occurred during testing (1).	**[3]**
	(ii) User manuals *Any 3 from:* Explains how to eg use a system (1) Organised by topics or tasks (1) Usually includes a quick start guide (1) Used as a reference tool (1) Can include FAQs (1)	**[3]**
12	**A company sells revision guides through its website. Orders over £100 are given a 5% discount. A charge of £5.00 is added for standard delivery. However, if express delivery is required then a charge of £10.00 is added. A delivery note is printed and included with the books.** **Draw a flowchart to show the processing of a customers order.** See example flowchart. Start and End (1) Decision boxes - including Y & N (2*1) Process boxes (4*1)	**[7]**


Start
Order value > £100?
Y
5% discount calculated and subtracted
N
Express Delivery required?
Y
£10 delivery charge added to total
N
£5 delivery charge added to total
Delivery note printed and added to order
End

Question	Answer	Mark
13	**Evaluate the benefits to a client of using an informal method of modelling data flows within a system** *Any 5 from, MAX 2 for description:* Informal methods include tools & techniques such as rich picture diagrams (RPD) and system flowcharts (1) Use easily understandable symbols (1). **Benefits** Usually self-explanatory (1) Enable pictorial visualisation (1) No formal knowledge of analysis is needed to understand an informal method (1) Easy for a client to understand (1) Processes, people and stores can be shown in a simple format enabling a client to identify any omissions (1) Can be developed prior to a formal techniques, such as DFD, being used (1)	**[5]**

G055 Networking solutions

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

- Pre-release material 30 marks
- Section A of test paper 50 marks
- Section B of the test paper 20 marks

Pre-release material

Task 2

Diagram

See Appendix 1

One mark each for including (in diagrammatic form or as a label) on the diagram:

A	**file** server in office network
B	file/web server on specialist network
C	**three** logical networks connected together (one wireless)
D	identification of who will use computers
E	**twelve** computers in office network
F	**ten** computers in treatment building network
G	**eight** computers in specialists network
H	hub/switch in office network
I	hub/switch in treatment building network
J	**wireless** hub in specialists network
K	router/ modem connected to office network
L	printers on each network
M	print server on each network
N	mail server on office network
O	proxy server on office network

MAX 8 **Total of marks 8**

Software

One mark for identification of software **and** where needed and **one** mark for a justification of any **five** of:

Type of software (T)	Where needed (W)	Justification (why needed)(J)
Network client software	Directors/Finance/Admin/Reception/Consultants/Treatment room/Specialists' workstations	Allows computer to request network services
Network adapter driver software	Directors/Finance/Admin/Reception/Consultants/Treatment room workstations, file server, mail server, proxy server, print server.	Manages the transfer of data to and from the network
Email client software	Directors/Finance/Admin/Reception/Consultants/Treatment room/Specialists' workstations	Requests sending and receiving of mail messages to/from mail server. Organises mail.
Browser software	Directors/Finance/Admin/Reception/Consultants/Treatment room/Specialists' workstations	Requests and displays HTML pages. Allows consultants to research.
Anti-virus software	All computers	Protects the computer from corruption by malicious software.
Driver software for networked printers	Directors/Finance/Admin/Reception/Consultants/Treatment room/Specialists' workstations	Manages the packaging of files ready for sending to a networked printer.
Protocol software	All computers	Sets and follows rules for communication.
Wireless adapter driver software	Specialists' workstations File/web server	Manages the transfer of data to and from the wireless hub.
FTP software	Specialists' workstations File/web server computer	Downloads files to client machines.
Server operating system	File server computer File/web server computer	Handles file management and sends files to clients on request
Email server software	Mail server computer	Manages requests for sending and receiving emails, manages the storage of email messages.
Proxy software	Proxy server computer	Gets web pages on request from clients. Caches frequently accessed pages. Hides IP addresses of individual computers.
Firewall software	Proxy server computer	Filters data to and from Internet. Blocks access from designated sites.
Modem connection software	Proxy server computer	Manages the transfer of data between proxy server and Internet.

Type of software (T)	Where needed (W)	Justification (why needed)(J)
ISP connection software	Proxy server computer	Establishes, maintains and terminates the connection between the proxy server and the ISPs server.
Printer sharing software	Print server computer	Manages print queues. Manage the format and sending of files to the printer
Web server software	File/web server computer	Handles web page management and sends pages to clients on request/hosts web pages.
Database software	File server on office network and all workstations	Stores patient and appointment details.
		[10]

Evaluation

Some comment is made on method(s) used **(1)**
A strength or a weakness of the method(s) used is identified **(1)**
A strength and a weakness of the method(s) used is identified **(1)** **[3]**

Task 3

Band	Mark range	
H	7 - 9	Candidates will show a clear understanding of the task by giving a full, appropriate justification of identified processes. The description is wholly relevant to connecting the main SIC network to the internet. The information will be presented in a structured and coherent form. There will be few if any errors in spelling, grammar and punctuation. Technical terms will be used appropriately and correctly.
M	4 - 6	Candidates will show an understanding of the question by identifying processes and appropriately justifying their use. Some relevant reference to SIC is made. The information will be presented in a structured format. There may be occasional errors in spelling, grammar and punctuation technical terms will be mainly correct.
L	1 - 3	Candidates will demonstrate a limited understanding of the question and will identify processes. Little or no reference to SIC will be made. Information will be poorly expressed and there will be a limited, if any, use of technical terms. Errors of grammar, punctuation and spelling may be intrusive.

To include:

Processes (P)	Justification (J)
Connect modem/router	Needed to connect to telecommunications line between computer/proxy server and ISP
Test the connection	To ensure that it is working correctly.
Configure connection software	With details of ISP and account (may also mention setting up IP addressing, IP filtering, privacy settings, DNS, NAT, demilitarised zones). To ensure a working connection is made.
Document all settings	So that the process can be repeated if necessary
Set up firewall	To increase security
Install modem/router connection software	To enable connected computer to use the modem/router
Install web browser software.	On all machines for access to WWW
Install ftp software	On any web servers for transfer of hosted web pages.

Section A Mark Scheme June 2009

1 1 mark each for **two** of

- as an information service
- in the same way as the internet
- accessible to the employees by password
- over the internet
- from their web server
- consultants can access information from outside.

[2]

2 One mark for identification and one for expansion of **two** of

- access to shared database (1) from any computer (1)
- sharing of printers/resources (1) lower initial costs (1)
- sharing an internet connection (1) from any computer (1) lower running costs (1)
- better communication (1) by email (1) or discussion forum for consultants (1).

(award only once for lower costs) **[4]**

3 One mark for identification and one for expansion of **one** of

- transfers data (1) between computer and network (1)
- forms the physical connection (1) between computer and network (1).

[2]

4 **(a)** Any **three** of

- independent segment on a LAN
- separate network but with same physical connections
- data generally stays within the VLAN
- may have a gateway computer that passes data across to/from main LAN
- computers on VLAN connected to main LAN but don't know it
- most computers on main LAN can't see computers on VLAN
- may use a bridge to separate it from the main LAN.

[3]

(b) One mark for identification and one for configuration of any **two** of

- network operating systems (1) installed on each computer (1)
- web server software (1) set up to manage intranet (1)
- network adapter software (1) to use common protocol (1)
- server operating system (1) configured to see all computers on the correct part of the network (1)
- file server software (1) configured for users and access rights (1).

[4]

5 **(a)** Any **two** of:

- stores information about computers connected to it
- decides on best route through network
- receives packets
- forwards packets based on IP address

[2]

(b) Any **two** of:

- makes a virtual connection between two computers
- connects a number of computers in a star or mesh topology
- uses MAC addresses
- used to divide networks into segments

[2]

(c) Any **two** of:

- connection between patch cables and drop cables
- connection point for a large number of drop cables
- central wiring point for a network
- provides a number of sockets into which cables are plugged

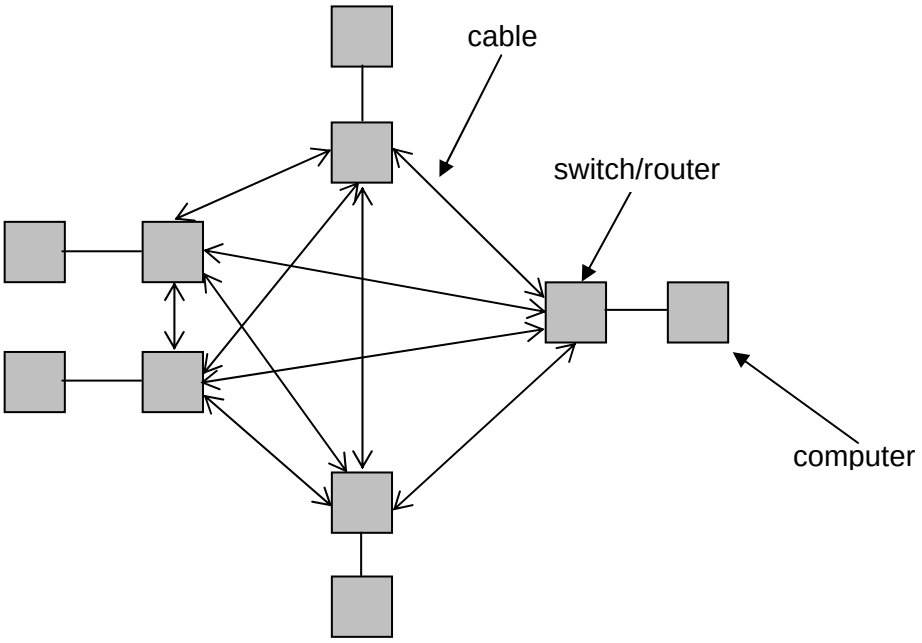
[2]

(d) Any **two** of:

- sits between two different networks
- converts between protocols on each network
- runs software that translates from one network format to another
- may change type of signalling, packet format, etc.

[2]

6 **(a)** 1 mark for correct diagram
1 mark for correct label
1 mark for showing direction of flow



[3]

(b) Two of:

Component: switch/router
cable/connector
computer/network card 1st mark

Part affected: switch/router - all devices connected to switch/router
cable/connector - routers/computer connected by cable
computer/network card
- only that computer and any computers connected to it
2nd mark

[4]

(c) One mark for feature and one for why useful

Feature	**Why useful**
Data can be re-routed	Can by-pass breakages Can find quickest route
More than one path for data transfer	Fast data transfer Can avoid bottlenecks
Direct connection between individual nodes	Fast data transfer

[2]

7 **(a)** One mark each for any **two** of:

- electronic message board
- users join forum
- access if by username and password
- users respond to messages and other replies
- strings of responses build up called 'threads'
- often moderated
- users are often rated according to the amount of use/number of postings or replies.

[2]

(then one mark each for identification of any **two** relevant uses)

- to post information for others
- to ask others for advice
- to give advice to others
- to discuss equipment / practices.

[2]

(b) Any **one** of:

- web server running software for discussion forum
- LAN connections to server.

[1]

8 Any **two** of:

- IP address of ftp server
- username
- password
- name of directory where files will be stored
- size of file to be uploaded
- name of file to be uploaded.

[2]

9

Band	Criteria	Marks
L	Candidate has identified risks	1–4
M	Candidate has identified risks Candidate has described causes of those risks	5–8
H	Candidate has identified risks Candidate has described causes of those risks Candidate has explained the minimisation of those risks linked to the causes	9–11

Risks (eg) (R)	Causes (C)	Minimisation (M)
Data is deleted	Hardware failure User error Deliberate/malicious removal	Regular back up Firewall/anti-virus software
Files are corrupted	Virus Hardware failure	Anti-virus software Regular back up.
Data is copied illegally	Hackers Corrupt users	Firewall software Delete old users Keep passwords secure Policies on where data is kept.
Data is viewed illegally.	Hackers Data left where it can be accidentally viewed.	Firewall software Secure passwords Policies for data use

[11]

Section B Mark Scheme June 2009

10 **(i)** fibre optic cable (1 mark)
ST or SC connector (1 mark)

OR

STP cable (1 mark)
RJ-45 connector (1 mark)

[2]

(ii) 1 mark each for any **two** relevant reasons from:

- fibre – immune to electrical interference
- fibre – light is not affected by electrical equipment
- STP – high level of resistance to electrical interference
- STP – fast transmission
- either – suitable length >100m before degradation.

[2]

11 1 mark each for any **three** of:

- http:// = internet service to be used
- www = type/name of server
- ocr.org.uk = domain name
- path to page stored on server
- type of organisation
- location.

[3]

12 Continuously varying (1 mark)

Use (e.g.): transmission of signals over telephone line, data from sensors (1 mark)

[2]

13 **(a)** 1 mark for identification and 1 for expansion of any of:

range of frequencies (1) on a channel (1) available for transmission of data (1)
difference between highest and lowest frequency (1) available of channel (1)
volume of data over time (1) expressed as bps (1)

[2]

(b) 1 mark for correct answer (4 seconds)

1 mark each for any two of:

size of file = 32 x 1024 x 8 bits
speed of transfer = 64 x 1024 bits per second
divide size of file by speed of transfer

[3]

14 **(a)** 1 mark each for any **three** of:

- keeps a record of all problems that have occurred
- groups problems into categories
- helps to show recurring problems
- provides a reference point
- referred to if major problems occur.

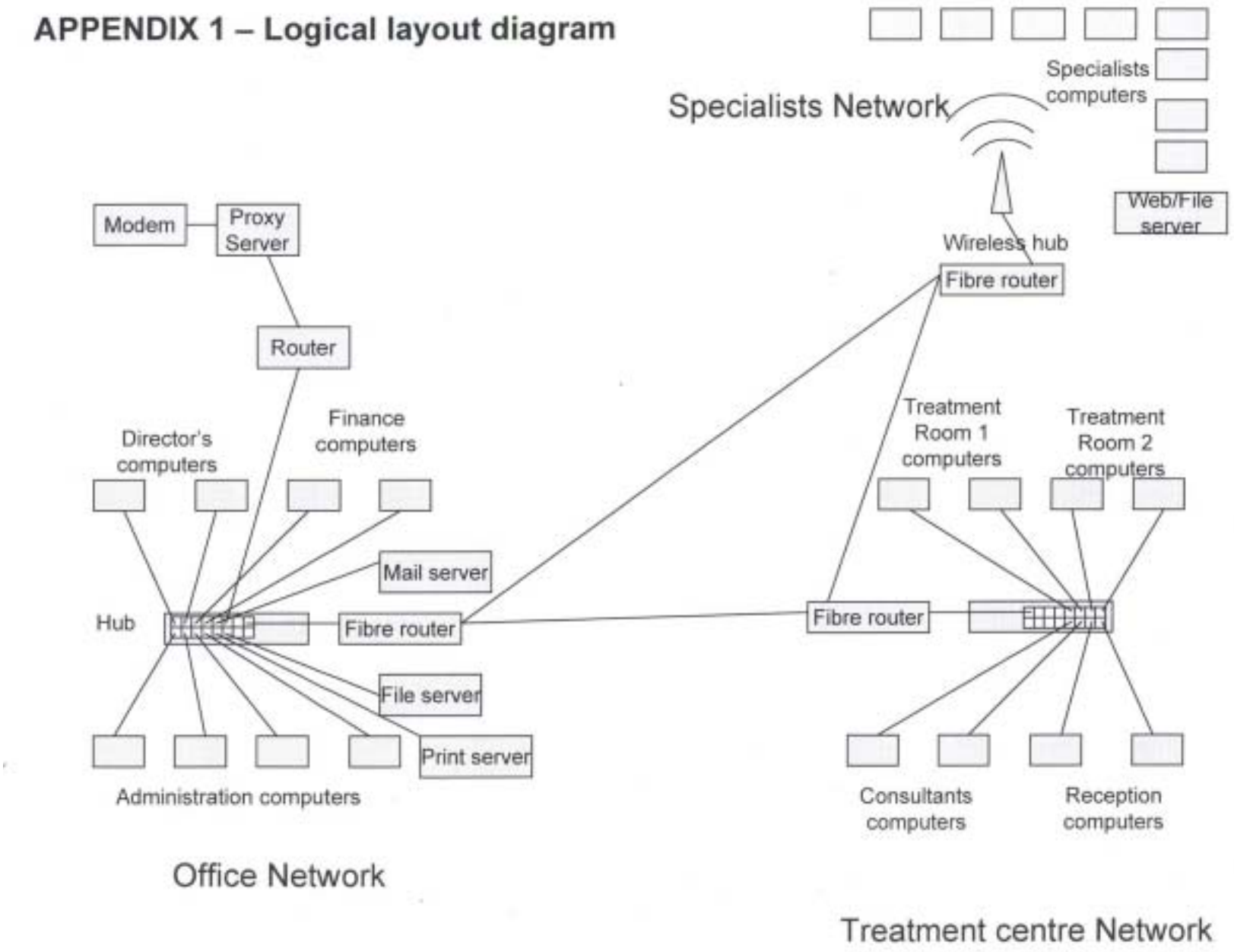
[3]

(b) 1 mark each for any **three** of:

- date
- time
- description
- user
- who reported the problem
- how the problem was resolved
- who resolved the problem.

[3]

APPENDIX 1 – Logical layout diagram



Grade Thresholds

GCE Applied ICT (H115/H315/H515/H715)
June 2009 Examination Series

Coursework Unit Threshold Marks

Unit		Maximum Mark	A	B	C	D	E	U
G040	Raw	50	46	41	36	31	26	0
	UMS	100	80	70	60	50	40	0
G042	Raw	50	46	41	36	31	26	0
	UMS	100	80	70	60	50	40	0
G043	Raw	50	45	40	35	30	26	0
	UMS	100	80	70	60	50	40	0
G044	Raw	50	44	39	34	30	26	0
	UMS	100	80	70	60	50	40	0
G045	Raw	50	44	39	34	30	26	0
	UMS	100	80	70	60	50	40	0
G046	Raw	50	44	39	34	30	26	0
	UMS	100	80	70	60	50	40	0
G047	Raw	50	46	41	36	31	26	0
	UMS	100	80	70	60	50	40	0
G048	Raw	100	87	77	67	58	49	0
	UMS	100	80	70	60	50	40	0
G049	Raw	50	46	40	35	30	25	0
	UMS	100	80	70	60	50	40	0
G050	Raw	50	46	40	35	30	25	0
	UMS	100	80	70	60	50	40	0
G051	Raw	50	46	40	35	30	25	0
	UMS	100	80	70	60	50	40	0
G052	Raw	50	46	40	35	30	25	0
	UMS	100	80	70	60	50	40	0
G053	Raw	50	46	40	35	30	25	0
	UMS	100	80	70	60	50	40	0
G056	Raw	50	46	40	35	30	25	0
	UMS	100	80	70	60	50	40	0
G057	Raw	50	46	40	35	30	25	0
	UMS	100	80	70	60	50	40	0
G058	Raw	50	46	40	35	30	25	0
	UMS	100	80	70	60	50	40	0
G059	Raw	50	46	40	35	30	25	0
	UMS	100	80	70	60	50	40	0

Examined Unit Threshold Marks

Unit		Maximum Mark	A	B	C	D	E	U
G041	Raw	100	77	70	63	56	49	0
	UMS	100	80	70	60	50	40	0
G054	Raw	100	68	60	52	45	38	0
	UMS	100	80	70	60	50	40	0
G055	Raw	100	69	61	53	46	39	0
	UMS	100	80	70	60	50	40	0

Specification Aggregation Results

Uniform marks correspond to overall grades as follows.
Advanced Subsidiary GCE (H115):

Overall Grade	A	B	C	D	E
UMS (max 300)	240	210	180	150	120

Advanced Subsidiary GCE (Double Award) (H315):

Overall Grade	AA	AB	BB	BC	CC	CD	DD	DE	EE
UMS (max 600)	480	450	420	390	360	330	300	270	240

Advanced GCE (H515):

Overall Grade	A	B	C	D	E
UMS (max 300)	480	420	360	300	240

Advanced GCE (Double Award) (H715):

Overall Grade	AA	AB	BB	BC	CC	CD	DD	DE	EE
UMS (max 600)	960	900	840	780	720	660	600	540	480

Cumulative Percentage in Grade

Advanced Subsidiary GCE (H115):

A	B	C	D	E	U
2.8	12.2	33.5	59.9	79.8	100
There were 9654 candidates aggregating in June 2009.					

Advanced Subsidiary GCE (Double Award) (H315):

AA	AB	BB	BC	CC	CD	DD	DE	EE	U
1.9	4	7.8	17.3	29.7	42.5	56	66.6	76.4	100
There were 670 candidates aggregating in June 2009.									

Advanced GCE (H515):

A	B	C	D	E	U
5	22	50.8	76.2	92.1	100
There were 7033 candidates aggregating in June 2009.					

Advanced GCE (Double Award) (H715):

AA	AB	BB	BC	CC	CD	DD	DE	EE	U
1.3	4.8	11.4	20.8	35.4	52.5	65.8	77	88.7	100
There were 797 candidates aggregating in June 2009.									

For a description of how UMS marks are calculated see:
http://www.ocr.org.uk/learners/ums_results.html

Statistics are correct at the time of publication.

OCR (Oxford Cambridge and RSA Examinations)
1 Hills Road
Cambridge
CB1 2EU

OCR Customer Contact Centre

14 – 19 Qualifications (General)
Telephone: 01223 553998
Facsimile: 01223 552627
Email: general.qualifications@ocr.org.uk

www.ocr.org.uk

For staff training purposes and as part of our quality assurance programme your call may be recorded or monitored

Oxford Cambridge and RSA Examinations
is a Company Limited by Guarantee
Registered in England
Registered Office; 1 Hills Road, Cambridge, CB1 2EU
Registered Company Number: 3484466
OCR is an exempt Charity

OCR (Oxford Cambridge and RSA Examinations)
Head office
Telephone: 01223 552552
Facsimile: 01223 552553

© OCR 2009