GCE

Applied ICT

Advanced GCE **AS H515/H715**

Advanced Subsidiary GCE **AS H115/H315**

Mark Scheme for the Units

January 2009

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Advanced GCE ICT (Double Award)(H715)

Advanced GCE ICT (H515)

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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
- Customer
- Head office/order processing department/order processing clerk
- Admin(istration) assistant
- Salesperson/salespeople
- Branch manager

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.
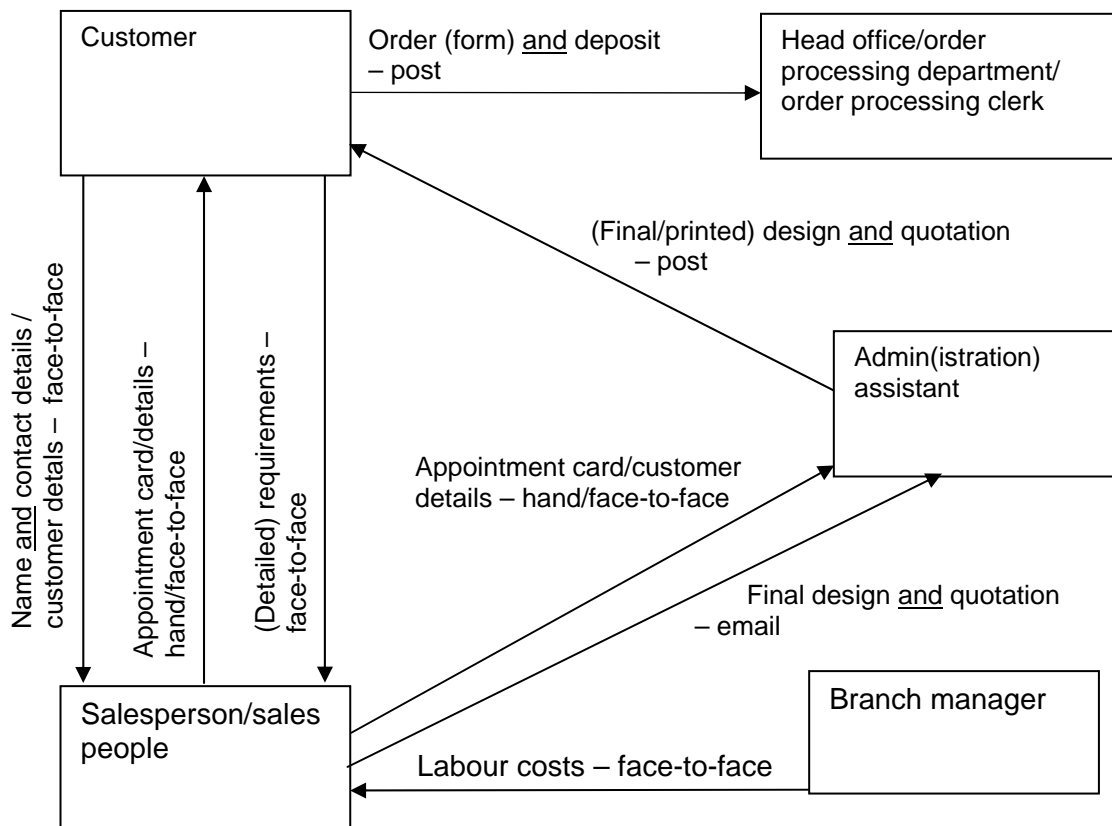
[15]

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 additional facilities the website could offer, with both benefits **and** limitations applied to Bedrooms4U.
		Facilities are clearly applied to Bedrooms4U and its customers.
		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 additional facilities the website could offer, with either benefits **or** limitations.
		Some facilities are applied to Bedrooms4U and its customers.
		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.

To include consideration of for example:

facilities
- providing bedroom design software for customers to download and use
- selling fitted bedrooms using e-commerce
- providing a searchable online catalogue of products
- registering the website as a sponsored site with large search engines
- provide advertisements for and links to related websites
- provide interactive maps and direction finding

benefits
- customers can experiment with design to find out what is possible
- customers can find out exactly what is available/what they need
- catalogue can be easily updated
- less time needed for home visits
- less salespeople may be needed
- sales to a wider geographical area (not world-wide)
- reduced overheads as not as many showrooms needed
- website will feature prominently on search results screen
- can charge other companies for including their advertisements/links
- customers can find their nearest showroom easily
- less telephone calls to ask directions

limitations
- customers may input incorrect/inaccurate measurements
- customers may order the wrong items/not order all the required items/the bedroom may not fit properly
- revenue may be lost because customers order the bedroom and fit it themselves/get someone else to fit it
- need to employ someone to design and implement the additional website features
- staff needed to maintain and update website
- registering with search engines may be costly
- by searching customers are offered a wider choice of suppliers and may choose a competitor

Annotation:
- F = facility identified/described
- F+ = facility explained in relation to case study/bedrooms
- B = benefit identified/described
- B+ = benefit explained in relation to case study/bedrooms
- L = limitation identified/described
- L+ = limitation explained in relation to case study/bedrooms

[15]

Section A

1   Any **one** of
   - Sales (1st) plus **four** of
     – interact with potential customers
     – encourage potential customers to order
     – help customers decide on type of bedroom
     – takes customer name, contact details on appointment card/makes appointment
     – hand appointment card to admin assistant
     – visit customers' homes to measure bedrooms
     – discuss customer requirements in detail
     – use design software to create bedroom design
     – check details and labour costs with branch manager
     – enter labour costs
     – email quotation and design to admin assistant
   - admin(istration) (1st) plus **four** of
     – keeps diary for salespeople
     – produce and send correspondence
     – produces confirmation purchase orders
     – checks invoices against copies of purchase orders
     – passes invoices to head office for payment
     – enters appointment in salesperson's diary
     – print design and two copies of quotation
     – posts design and quotation to customer
     1 mark for job function plus 1 mark per point to max 4 for matching tasks   **[5]**

2   Any **five** of
   - checks the availability of parts for orders
   - <u>faxes</u> production manager to order company-manufactured items
   - telephones branch manager to give date when all items available
   - updates stock database when new stock arrives
   - removes stock from database when sold
   - checks stock level of handles etc <u>monthly</u>
   - creates purchase orders (and other reports)
   - posts purchase orders to approved suppliers
   - telephones supplier with emergency orders
   - responsible for ordering stocks of handles etc
   - can check if items in stock by entering product number
   - responsible for warehouse assistants   **[5]**
   1 mark per point to max of 5

3 Any **one** of
  • general public (1st) plus **two** of
    – visits showroom
    – deals with salesperson/admin assistant/head office/order-processing clerk
    – receives home visit
    – receives designs/quotation
    – posts order/deposit
  • house builders (1st) plus **two** of
    – orders in bulk
    – deals with Sales and Marketing Director
    – negotiates price
    – contract drawn up
  1 mark for type of customer plus 1 mark per point to max of 2 for matching interactions **[3]**

4 **(a)** **(i)** • product number
          • quantity
          1 mark per point to max of 2 **[2]**

   (ii) Must match item
          • product number – selected from drop-down list
          • quantity – keyed in / using keyboard
          1 mark per point to max of 2 **[2]**

   (b) Any **one** of
          • cost of ordered items
          • installation costs
          1 mark **[1]**

   (c) Any five of
          • look up item description and price (accept search stock database for look up)
          • multiply item price by quantity
          • add total item prices
          • add cost of ordered items
          • add total order value to sales of named salesperson
          • add labour costs
          • calculate and add VAT
          • deduct deposit from final cost
          1 mark per point to max of 5 **[5]**

(d)   Invoice (1)

Plus a description that includes any **three** of

- invoice number <u>and</u> date
- the proposed installation date
- the customer's details
- where to send payment
- details of items, quantities and prices / order details and prices
- details of total price and VAT
- details of instalments / what they have left to pay
- details of when payments must be made
- details of how to pay / terms (and conditions)

1 mark per point to max 3

Do not accept a simple list of items shown in appendix 3

[4]

5   A description to a maximum of **10** from
         hardware
- laptop computer (1st) high specification (1)
- docking station(1st) <u>connection to</u> LAN (1) provides standard keyboard and mouse (1) 19" flat-screen monitor (1)

software
- (bespoke) design package (1st) installed on laptop computers (1) used to create <u>scale</u> drawing / render design to produce 3D image (1)

input data
- dimensions of bedroom (1st) including length, width, position and size of windows and doors (1)
- furniture required (1st) selected <u>and</u> positioned (1) from a library of icons (1)
- material/finish/handles/internal fittings/ colour and design of carpets and curtains (1st) selected from drop-down lists (1)
- customer name and contact details (1st) added to design (1)
- labour costs (1st) entered by salesperson (1)

outputs
- 3-D image of finished bedroom(1st) shown on screen (1)
- list of parts needed(1st) and their costs (1)
- <u>final</u> design (1st) after any necessary adjustments(1)
- quotation (1st) <u>that includes</u> order form (1)

processes
- design rendered (1st) to produce a 3-D image of the finished bedroom (1)
- <u>generate</u> list of parts needed (1st) and <u>look up</u> cost of parts (1)
- total cost <u>of parts</u> calculated(1st) from list of parts needed (1)
- labour cost added (1st) to cost of parts (1)
- VAT calculated (1st) and added to total (1)   **[10]**

To achieve maximum marks there must be at least one point from each section.

6   **(a)**   Any **two** possible changes identified and explained
               eg
- some employees may be able to work from home (1) because they can access the server via the internet (1)
- salespeople will not need to go into showroom (1) because they can communicate by mobile phone/wireless laptop (1)
- longer operating times may be needed (1) to deal with web sales (1)
- shift work /flexitime may be needed (1) giving staff greater flexibility (1)
- short-term contracts may be used (1) to cope with changes in demand (1)   **[4]**

Up to 2 marks each to max of 4
DNA answers related to systems

    (b)   Any **two** matching possible impacts suggested and explained
               eg
- staff working mainly from home may be less motivated (1) because they are not supervised directly (1)
- some people may lose their jobs (1) because less showrooms may be needed (1)
- employees will have less job security (1) due to short-term contracts (1)
- employees may have less social interaction with colleagues (1) if working from home/remotely (1) but more interaction with family (1)
- employees may need to undergo more training (1) because of changes to systems (1)
- staff working from home may be more relaxed (1) because they have greater flexibility (1)
- employees may be under more stress (1) because of greater responsibility for equipment / data (1)

Up to 2 marks each to max of 4   **[4]**
DNA lack of ICT skills as a reason for job loss

7 **(a)** The Data Protection Act/DPA (1998) **[1]**

(b) Any **two** of
- appoint a data controller (1st) who determines how and for what purpose data will be used (1)
- apply to the Information (Data Protection) Commissioner (1st) to be added to the register (1)
- put security measures in place (1st) to protect the personal data (1)
- check accuracy of data (1) and update if necessary (1)
- delete data (1st) that is no longer required (1)
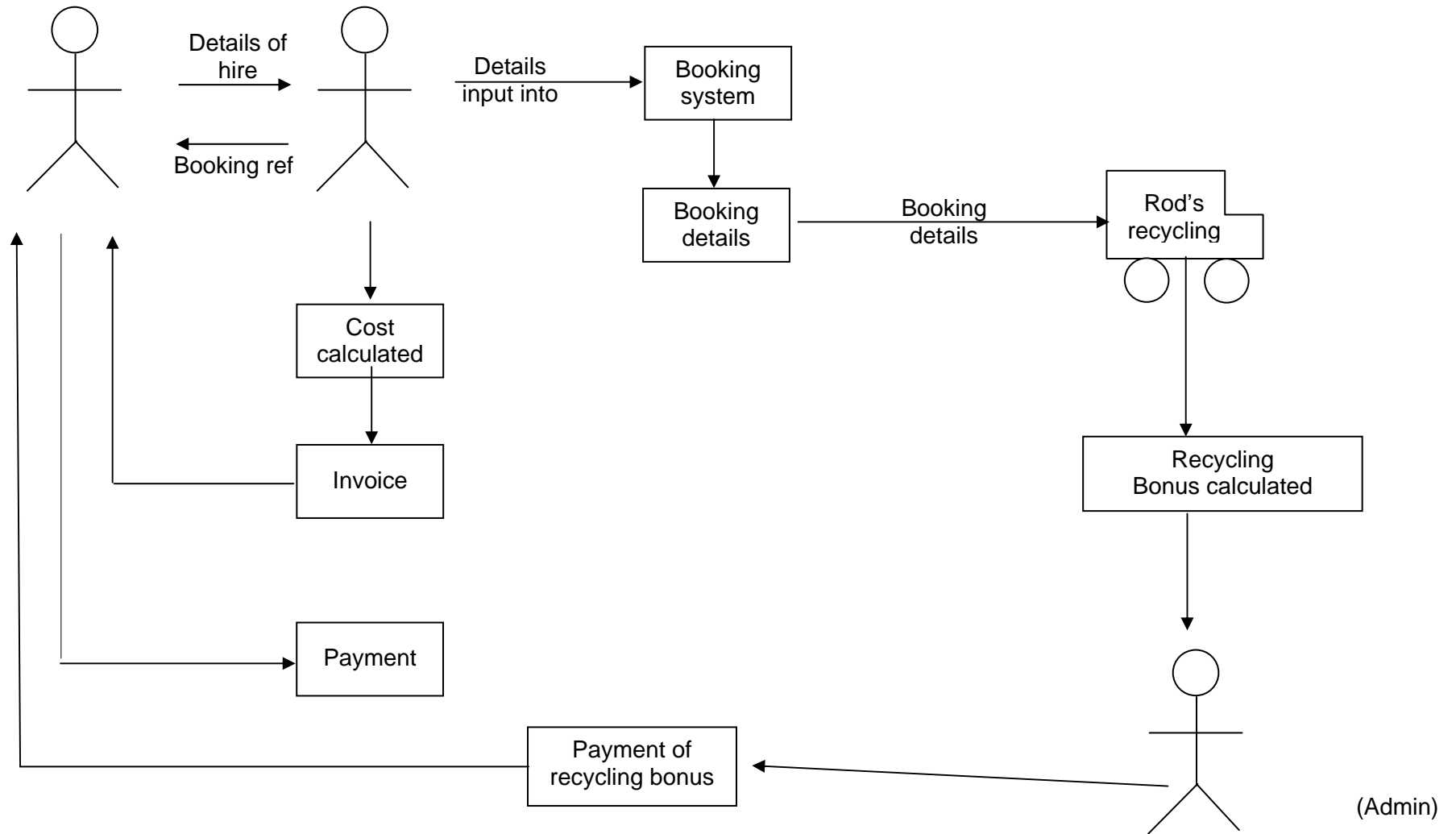
Up to 2 marks per point to max of 4

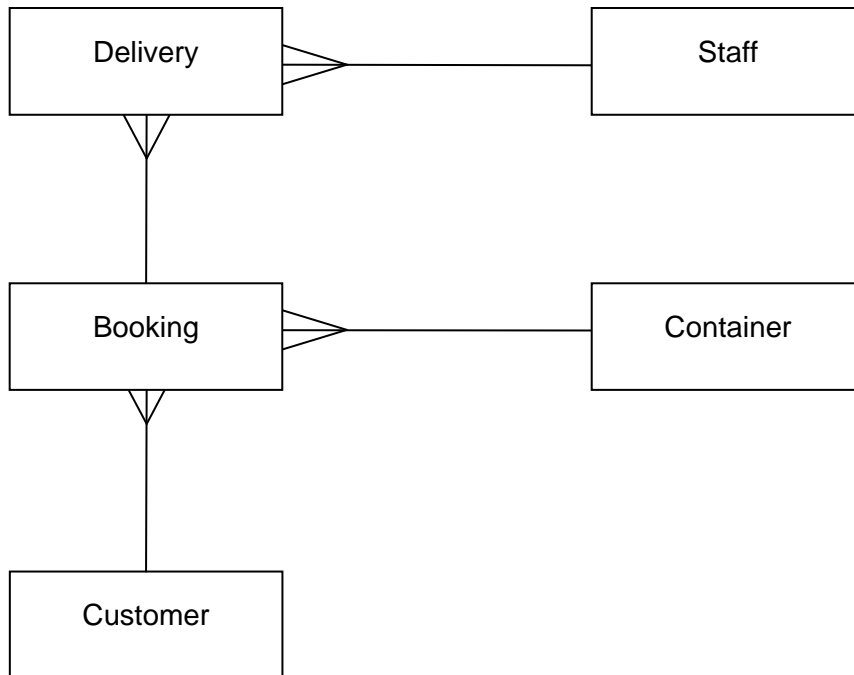NB: Actions are required, **not** a statement of the 8 principles **[4]**

Section B

8 **(a)** Any **two** of
- training courses attended
- qualifications obtained
- particular skills

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

(b) Record training plans for employees (1) so that appropriate training is provided (1) on a regular basis (1) to keep skills updated (1) to ensure all employees get their fair share of training (1)
check training records (1) to see if further training is required (1) to see if employee can be trained / has skills needed (1) to fill a job vacancy/to gain promotion (1) **[4]**
1 mark per point to max 4

9 **Research**
Carry out research into new techniques (1), new/alternative raw materials (1) and technologies (1) to see if they can be applied to the products supplied (1) **[2]**
1 mark per point to max 2
DNA market research

Development
Develop new products / concepts (1) or improve existing products (1) based on new techniques and technologies (1) or on market research (1) creating prototypes (1) and testing them (1) **[2]**
1 mark per point to max 2

10 (a) Any **two** of
- hourly rate of pay
- annual salary / salary grade
- tax code
- pension contribution rate
- contracted hours

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

(b) (i) Any **three** of eg
- look up annual salary
- divide by 12
- look up tax code
- calculate/deduct tax/NI
- look up pension contribution rate
- calculate/deduct pension contribution
- other reasonable specified additions or deductions

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

(ii) pay slip/pay advice/remittance advice **[1]**

(iii) computerised mailing system (1) prints letters /slips with details of payment (1) automatically sealed (1)
1 mark per point to max of 2 **[2]**

(c) Any **two** of eg
- staff turnover
- changes to personal details – accept examples eg change of address / name / bank details
- change of pay rate – eg sickness / unpaid leave
- promotions
- changes in tax code
- changes in pension contributions
- changes in overtime / bonuses / hours worked

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

G054 Software development

There are 100 marks available for this examination. 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 RPD (See attached example)

1 mark available for identification of:

- Consistency - C
- Customer **and** Yard clearly identified - E
- Logical order of processes - L

1 mark for each correct flow of information - F (Max 9)

Evaluation – 3 marks available

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

Task 3 (10 marks)
(See attached ERD)

Task 2

Task 3

     1 mark for all boxes correct
     1 mark for each cardinality (MAX 2 marks per line)
     1 mark for consistency

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
- Identification of Rods Recycling
- Start date, end date/duration (of hire period)
- Delivery details/type of recycling container/box
- Automatic field for showing of booking can be fulfilled
- All data/information show is appropriate (eg customer name, address, contact number, type of recycling container/box) with no omissions/extra data required
- Use of validation/drop down boxes/option boxes/radio buttons where appropriate

Section A

Note: RR = Rods Recycling

Question	Answer	Mark
1	**One of the defined purposes of the new system is to solve the problems relating to the information held by Rods Recycling.** **Describe two 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 (1) between head office and (recycling) yard (1) To increase the security of information (1) held on the computers in <u>head office</u> (1) To produce reports for the owner (1) example of report (1)	**[4]**
2	**Functional and non-functional requirements will be defined during the development of the feasibility study.**	
(a)	**Describe the defined functional requirements that relate to the customers of Rods Recycling.** *Any 4 from:* To keep records (1st) of all hires made by customers (1) To calculate recycling bonus (1) and print statement/invoice for customers (1) To keep a database (1st) of customers details (1)	**[4]**
(b)	**Describe the defined non-functional requirements that relate to software.** *Any 2 from:* Operating system <u>vendor</u> to be the same as existing operating system (1) To standardise the (applications) software used throughout RR (1) To provide internet and email software (1)	**[2]**
3	**The owner of Rods Recycling has defined process constraints to be considered during the development of the feasibility study.**	
(a)	**Explain the time constraint that has been defined by Rods Recycling.** *Max 3 from:* System to be <u>implemented</u> (1) Within 25 weeks (1) An event has been planned to promote recycling (1)	**[3]**

Question	Answer	Mark
(b) (i)	**Identify one other process constraint that has been defined by Rods Recycling.** Budget/software (1)	**[1]**
(b) (ii)	**Describe how this has been defined by Rods Recycling.** *The description MUST match the answer given to b(i)* Budget: £25,000 (1) for hardware <u>and</u> software (1) Software: To use the same vendor (1st) for the operating system (1) / to standardise software (1) throughout RR (1)	**[2]**
4	**Some of the problems caused by the current system relate directly to the customers of Rods Recycling.** **Describe the problems relating to the customers of Rods Recycling.** *Max 2 per description, any 2 from:* Recycling bonus (1st) being calculated/paid incorrectly (1) Booking for recycling boxes/containers being taken (1st) when no appropriate boxes available (1) Recycling boxes/containers being booked to customers (1st) but unavailable due to maintenance or cleaning (1) No formal method of recording customer information (1st) resulting in loss or misplacement of customer information (1)	**[4]**
5	**The owner has defined user requirements relating to the system being able to adapt to future changes affecting the operation of Rods Recycling.** **Describe two of these requirements.** *Max 3 per description, any two from:* Be able to develop a website (1st) with secure area (1) for customer booking (1) To be able to adapt to changes in (1st) VAT rate (1) expansion of business (1) wormeries/compost bins/water butts (1)	**[6]**
6 (a)	**Recommendations about hardware and software will be made during the feasibility study.** **The delivery notes that are given to customers when the recycling containers are delivered are produced at the yard.** **Identify the most suitable device for this task, justifying your choice.** *1st for device, up to 2 for justification, for example* Printer (1st mark) keep paper copies of delivery notes (1) customer needs a copy when boxes delivered (1) 2 copies need to be printed (1)	**[3]**

(b)	**The recycling bonus due to a customer is calculated at the yard.** **Identify the most suitable type of software for this task, justifying your choice.** *1st for software, up to 2 for justification, for example:* Spreadsheet (1st) enables calculations to be completed (1) using formulas (1) template can be used (1) validation can be incorporated into template (1) calculations can be hidden from user/user friendly (1)		**[3]**
7	**Observation is one method that can be used when investigating the system at Rods Recycling.** **Identify one other method of investigation suitable for use at the head office of Rods Recycling giving two reasons for your choice.** *1st for method, up to 2 for reasons. 1 from:* Questionnaires (1st) the same questions can be asked (1) enabling statistical analysis (1) anonymity of respondents (1) may lead to honest answers (1) can be used for large groups (1) Document analysis (1st) 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) Interviews (1st) questions can be modified as information is given (1) facility for additional information to be identified (1) interviewee feels 'important' (1) creates a rapport with interviewee (1) questions can be pre-planned (1)		**[3]**

Question	Answer	Mark
8	**One of the user requirements from the new system is an increased level of security.**	
	Explain, using examples from Rods Recycling, how this user requirement could be achieved. You should consider physical and logical security in your answer.	

Band	Mark Range	
H	9 – 12	Candidates will show a clear understanding of the question and include detailed explanations of the physical **and** logical security methods. 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. Physical **and** logical security methods are explained although not necessarily equally and may lack detail. Some examples given 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. Information may be a list of points, with little or no explanations. Examples, if given, may not relate to RR. 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:

Access levels - different groups of staff within RR would have access to the data/information needed to complete their jobs eg Owner requires access to all information/data to maintain a complete 'picture' of RR, personnel records need to be kept confidential/DPA only owner and staff member can see their records.

User Names/Passwords - determines access to information/data. Each staff member has a unique password made up of letters and numbers regularly changed, not a recognisable/memorable word reduces risk of hacking, can provide an audit trail.

Physical Security - for example locks on doors/windows, back-ups of data/information held off-site, blinds at windows.

[12]

9	**Following development, the new system it will need to be implemented.**	
	Identify the most suitable implementation method for Rods Recycling, justifying your choice.	
	1st mark for method, 2 marks for justification.	
	Phased (1st mark) there are 2 sites (1) can implement system in head offices (1) ensure that admin sub-system is correct (1) then move onto recycling yard (1) where some data/information required is reliant on admin (1)	
	Parallel (1st mark) run manual and new system in parallel (1) means more work for staff (1) ensures that the new system is running as required (1) and if there are any problems with the new system (1) running of the company will not be affected (1)	
		[3]

Section B

Question	Answer	Mark
10	**During the design of a new system an output specification is developed.** **Identify two components of an output specification.** *2 from:* Data require for output (1) Printed report layout (1) Display/Screen report layout (1) Methods of data output (1)	**[2]**
11	**Validation can be used to check the data that is being input into a system.**	
(a)	**Explain validation** *2 from:* Checks that the data entered into the system is reasonable (1) <u>and</u> in the correct format (1) Validation usually defined in the data dictionary (1) Validation does not prove that the data entered is correct (1)	**[2]**
(b)	**Identify two methods of validation** *2 from:* Type check (1) Input mask (1) Length check (1) Range check (1) Presence check (1)	**[2]**
12　(i)	**Complete the decision table below to show which type of lorry will be used for each delivery.**	

	Rule 1 (1)	Rule 2 (2)	Rule 3 (3)	Rule 4 (4)
Conditions				
Perishable?	Y	Y	N	N
Journey Time >=6hrs (1)	N	Y	Y	N
Actions				
Normal Lorry				X
Refrigerated lorry (1)	X	X	X	

[6]

(ii)	**What type of lorry will be used if the food is not perishable and the journey time is 9 hours.** Refrigerated lorry (1)	**[1]**

Question	Answer	Mark
(iii)	**What type of lorry will be used if the food is perishable and the journey time is 5 hours.** Refrigerated lorry (1)	**[1]**
13	**When a new system is developed the end-users will need to be trained to use the system.** **Evaluate the use of the on-site/on-the-job training methods for training staff in a large organisation.** *Any 6 from, MAX 5 if only advantages/disadvantages given.* *MAX 1 for a description.* Used to pass on skills and knowledge from other staff / use of an external trainer coming to company (1) **Advantages eg** Little/no cost involved (1) as member of staff training/being trained is already getting paid (1) Other staff do not have to cover work load (1) if a member of staff is out of office (1) Convenience (1) new staff can ask questions as situations arise (1) All situations can be covered (1) as long as training period is long enough (1) Existing staff can take the role of mentor (1) **Disadvantages eg** Skills and knowledge passed may include incorrect knowledge (1) or bad working practices (1) Pressure of working day (1) may not provide suitable time span (1) to pass on new skills (1) Decisions need to be made whether training takes place on one-to-one basis or in a group (1) Staff doing training may fall behind with own work (1)	**[6]**

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-released material

Task 2

Diagram

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

A	one computer in each treatment room
B	four computers in consultation rooms
C	two computers in reception
D	twelve computers in office building
E	Some computers in finance/directors office

Up to three marks

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

F	file server in secure room
G	server in specialist treatment rooms
H	cabling appropriately placed in lift shaft and around walls
I	hub/switch in office building and in lower floors of treatment building
J	wireless hub in treatment rooms
K	router in office building
L	modem in office building
M	web server/proxy server in office building
N	networked printers in both buildings
O	printer server (only award if there connected to a networked printer)
P	mail server in office building
Q	networked printer in specialist' treatment rooms

Up to **five** marks

To max **six**   **[6]**

<u>List of components</u>

TRANSMISSION MEDIA

Any **one** from:

Identification of appropriate media in appropriate location	Identification of appropriate connector	Justification of media choice
fibre optic between buildings (1st)	ST/SC (1)	covers required distance (1)
STP or fibre optic in lift shaft (1st)	RJ-45 (1)	resistance/immunity to electrical interference (1)
UTP/STP in office building/lower floors treatment centre (1st)	RJ-45 (1)	acceptable speed/distance (1)
Wireless in specialist treatment rooms (1st)	adapter card or USB adapter (1)	easier to install/computers can be placed anywhere (1)

Max **three** marks   **[3]**

CONNECTING DEVICES

Any **one** from:

Identification of connecting device appropriate location	Justification of media choice
Hub in office building/lower floors of treatment centre (1st)	fast central connection point for all computers (1)
Switch in office building/lower floors of treatment centre (1st)	secure/direct connection point for all computers (1)
Wireless hub in specialist treatment rooms (1)	central connection point for laptops (1)
Router (any location) (1st)	shared connection to internet for all computers (1)
Modem (any location) (1st)	connection to internet for network (1)

Max **two** marks   **[2]**

OTHER ADDITIONAL HARDWARE

One mark for identification of and one mark for a justification of any **two** of:

File server in secure room	To store client database and other files centrally
Proxy server	To filter pages from the internet To hide individual IP addresses To cache frequently accessed pages To deal with requests for internet resources
Web server in specialist treatment area	To host web pages
Network interface cards	Form a connection to the network media
Network printer in office	Shared access to printer
Network printer in treatment building	Shared access to printer
Networked printer in specialists treatment area	Shared printer for specialists
Printer server	To manage print queues
Mail server	To manage the exchange of emails for client machines
UPS	To ensure constant supply of power

Max **four** marks   **[4]**

ADDITIONAL SOFTWARE

One mark for identification, **one** mark for location and **one** mark for a justification of any **one** of:

Server operating system	File server	Manages all network services, resources and users
Network client operating system	Workstations	Allows computer to operate as a client on the network
Network adapter driver software	All computers	Controls transfer of data by adapter
Printer server software	Print server	Manages multiple access to printers Manages a print queue
Email	Workstations/ Mail server	Improved communication between network users/with clients
Browser software	Workstations	Provides access to internet services
FTP software	Proxy server	File transfer between computer and web server

Max **three** marks   **[3]**

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 and appropriate justification of identified factors in relation to SIC. 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 factors and appropriately justifying some in relation to SIC. 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 by identifying one or more factors. 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:

Factor (F)	Justification in relation to SIC (J or J+)
Size of network	Indication that there are a large number of machines to connect. Peer-to-peer would be too difficult to manage.
Need to share resources across the network	Resources need to be managed centrally (on a server). Resources include printers, internet connection.
Need to manage security centrally	Confidential data must be stored on a central server. Responsibility for security on the server can't easily be shared.
Need servers for online bookings	Clients can make bookings online. Staff need access to those bookings from anywhere.
Staff need to be able to use different computers	Access to data needed from anywhere. Difficult if stored on individual machines.
Client-server networks can share data more quickly.	Quick access to patient records is needed. This data can't be stored on a client machine used for other things as this would be too slow.

Section A

1   **One** mark for identification and one for expansion.

can be used as an information service for staff (1) in the same way as the internet (1)
web pages are stored within the network (1) for extra security (1)
frequently accessed web pages can be stored (1) for quicker access (1)
any specific examples of use described (1)
consistency of information (1) to all staff (1) up-to-date information can be shared with all
staff (1) via intranet web pages (1)   **[2]**

2   **(a)**   Any **three** of:
- each computer has a receiver/transmitter
- has a wireless hub or access point
- slow data speeds (54mbps)
- uses radio frequencies
- broadcasts data
- subject to radio interference
- signals can pass through wall, ceilings and floors
- no physical connection on the network
- signals have a maximum range   **[3]**

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

(Physical) connection (1) between computer and telephone/cable line (1)
Convert signals (1) between computer and telephone cable (1)   **[2]**

4   **(a)**   One mark for identification and one for expansion of any **two** of

Transmission media (1) to connect computers to each other (1)
Bridge (1) to filter traffic from outside VLAN (1)
Server/gateway computer (1) to send/receive data with the main LAN (1)
Network adapters (1) in every computer to form a physical connection (1)
Backbone cable (1) to join the bridge/server to the main network (1)
Switch (1) to divide a LAN into a set of VLANS (1)   **[4]**

(b)   One mark for identification and one for expansion of **two** of:

separate from main network (1) but connected (1)
reduced traffic (1) on specialists' part of network (1)
access to shared data (1) from any computer (1)
sharing of printers (1) lower costs (1)
sharing an Internet connection (1) from any computer (1) lower costs (1)
better communication (1) by sharing ideas on discussion forum (1)
centralised management (1) better security of data (1)   **[4]**

5   **(a)**
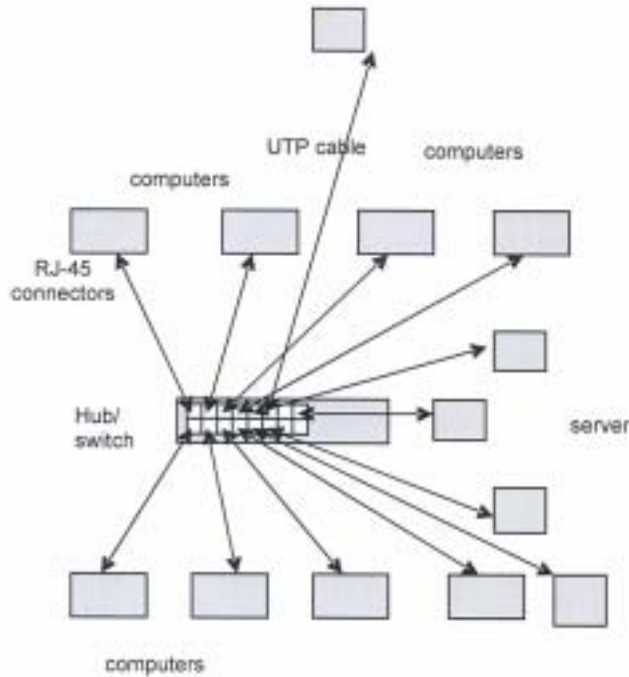
One mark for a correct star topology diagram
One mark for labelling of hub/switch
One mark for any of: computers, servers, UTP cable, connectors
One mark for showing direction of flow   **[4]**

(b)   One mark for identification of feature and one for which part affected by any **two** of

Component	Which part affected
Hub/switch	Whole network
Cable	Only connected computer
Network card	Only connected computer
Computer	Any computer that wants to communicate with that one

[4]

(c)   One mark for feature and one for explanation of any of:

Isolated breakages (1st) only affects one computer (1) easy to identify (1)
One cable per computer (1st) easy installation (1) easy to expand (1)

[2]

6 **(a)** One mark either of

- commercial transactions done electronically
- buying and selling of <u>goods</u> <u>and</u> <u>services</u> online **[1]**

(b) 1st mark for identification of service and one further mark for relevant benefit from:

- online banking (1st) more convenient to transfer money/check balance/pay wages/pay specialists (1)
- form submission (1st) quicker submission of application forms/tax returns/medical details (1) checking of details at point of entry (1)
- paying for goods (1st) easier for customers to pay their accounts (1) easier for company to pay for supplies (1)
- booking appointments (1st) customers can make appointments/check availability/cancel appointments at any time (1) reduced workload for admin staff (1) **[4]**

(c) Any **one** of

- server running transaction software
- modem/router to allow access over the internet
- computer <u>with browser software /internet ready</u> **[1]**

7 **(a)** 1st mark identification and second for expansion of any of:

- login to a remote FTP server (1st) allows users to manage files on the server (1) access to files and folders on the server (1)
- upload / download / transfer files over Internet (1st) between FTP server and user's computer (1) **[2]**

(b) 1st mark identification and second for expansion of any of:

- creates HTML pages (1st) allows users to add dynamic features to web pages (1)
- allows users to create web pages graphically (1st) converts graphical pages to HTML **[2]**

(c) 1st mark identification and second for expansion of any of:

- blocks access to named sites (1st) to protect network (1)
- prevents access from unknown sources (1st) to protect network from hackers (1)
- inspects all packets of data (1st) matches packets received against requested (1) filters out rogue packets of data (1) **[2]**

8 Any **two** of

- username
- password
- IP address of ISP
- IP Addresses of connected computers
- date connected/installed
- ISP details (eg names, telephone number) **[2]**

9

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

Risks (eg) (R)	Causes (C)	Minimisation (M)
Electrocution	Faulty/bad installed equipment. Failure to isolate from power supply during installation.	Check electrical equipment regularly. Isolate equipment from power supply during installation.
Tripping	Trailing cables	Situate cables around walls, under floors, in trunking.
Stress	Cramped working conditions.	Ensure enough space at every workstation.
Health problems through prolonged use of computers on the network. eg RSI, eyestrain, back problems	Badly designed furniture. Working for long periods. Badly designed equipment.	Ergonomic furniture design. Policies for healthy working. Ergonomic equipment design.
Electrical fire	Faulty equipment	Check equipment regularly
Back strain	Lifting heavy equipment incorrectly	Training in lifting procedures

[11]

Section B

10   **(i)**   fibre optic cable (1 mark)
              ST or SC connector (1 mark)   **[2]**

      (ii)   1 mark each for any **two** of (only award if cable correct in (i))

-     covers the required distance
-     can transmit data up to 10km
-     light travels further than electrical signals
-     acceptable speed at this distance
-     less susceptible to interference   **[2]**

11   1st mark for identification and further mark for expansion of any of:

-     defines how a web page is requested (1st) deals with hyperlinks (1)
-     used when translating HTML code (1st) translates mark up tags (1) translates code into graphical features (1)   **[2]**

12   1st mark:
        changing of signals

    further mark for any **one** of
-     from form on one medium to form on another
-     computer signal to telecoms signal
-     sometimes digital to analogue

    further mark for identification of use
        at point of connection to the internet

    Max 3 marks   **[3]**

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

- method used to divide a network into segments (1) each segment uses a set of similar IP Addresses (1)
- a set of similar IP addresses (1) for computers on one network (1)
- part of an IP address (1) obtained using subnet mask (1) **[2]**

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

- has identified an IP address
- has used 255 in any one section
- has used 255 in first three sections
- subnet mask = 255.255.255.128 **[3]**

14 **(a)** 1st mark

record all transfers

further mark for any **two** of:

- identify a particular transfer to link to a problem
- allow tracking of events
- trace source of problems
- identify common problems
- identify problem destinations or data sources **[3]**

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

- date
- time
- duration
- connection type
- protocols used
- size of transferred file
- source address
- destination address
- file type **[3]**

Grade Thresholds

GCE Applied ICT (H115/H315/H515/H715)

January 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	84	74	64	54	45	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	72	64	57	50	43	0
	UMS	100	80	70	60	50	40	0
G054	Raw	100	71	65	59	53	47	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
2.7	14.5	38.4	69.3	92.7	100
There were 594 candidates aggregating in January 2009.					

Advanced Subsidiary GCE (Double Award) (H315):

AA	AB	BB	BC	CC	CD	DD	DE	EE	U
0	0	4.8	19.0	38.1	66.7	81	90.5	95.2	100
There were 22 candidates aggregating in January 2009.									

Advanced GCE (H515):

A	B	C	D	E	U
18.2	36.4	59.1	68.2	100	100
There were 26 candidates aggregating in January 2009.					

Advanced GCE (Double Award) (H715):

AA	AB	BB	BC	CC	CD	DD	DE	EE	U
50	50	50	100	100	100	100	100	100	100
There were 2 candidates aggregating in January 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.

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