GCE

Applied ICT

Advanced GCE **AS H515/H715**

Advanced Subsidiary GCE **AS H115/H315**

Mark Scheme for the Components

June 2008

H115/H315/MS/R/08

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MARK SCHEMES ON THE UNITS

Marking tasks

All papers allow marks for the pre-release tasks:

- indicate clearly with a tick (✓) where each mark is awarded – if appropriate
  - count the number of ticks and enter the number in the Tasks boxes on the front of the question paper.

- graded response tasks -indicate clearly how a mark band has been achieved
  - AO4 + 1/2/3 – identifies mark for evaluation (1-3 marks)
  - CS – response has been applied to case study
  - P/E/+/- - identifies points/expansions, positive and negative points
  - H/M/L + mark – identifies mark band and mark for content
  - add AO4 and H/M/L mark together to get total mark for the task and enter in the Tasks boxes on the front of the question paper

- indicate that each page has been looked at by putting a diagonal line across the bottom right-hand corner of any page where no marks are awarded

Marking the questions

Only answers to questions written on the Question Paper should be marked.

Indicate clearly with a tick **exactly** where each mark is awarded. The number of ticks must equal the number of marks.

Write the number of marks from the question paper in the right-hand margin level with the bottom of the lines/space for the answer.

Make sure you do not give marks twice for the same points or exceed the number of marks available. Write **Max** next to the last tick to indicate where the mark limit for the question/part question has been met, especially if there are further points worthy of credit.

Total the marks for the whole question (**not** part questions) and write this in a circle, in the right-hand margin of the question paper, at the end of the question. There should be a circled mark for each question.

Mark any answer that is clearly wrong with a cross (✗).

Draw a line on the right-hand side of any answer that does not contain any points worthy of credit and/or use the abbreviations provided. It must be clear that you have read **all** the answers given.

Do not write anything on the question paper or pre-released tasks other than the approved abbreviations given over the page.

^	Something vital to the mark point has been omitted.
BOD	Benefit of the doubt given.
NBOD	Benefit of the doubt **not** given.
CON	Candidate contradicts him/herself.
NAQ	Candidate has not answered the question as set.
MTP	Candidate has missed the point of the question.
W	Candidate is working towards a mark but has not given enough to receive credit at this point.
NE	Not enough for the candidate to receive credit.
TV	Answer is too vague to receive credit.
FTC	Follow-through credit. When an earlier wrong answer has been penalised, this may be used to show that credit can now be given to a part of the script which depends on that earlier wrong answer. This avoids penalising a candidate twice for the same error, but **should only be used where specified by the PE**.
MAX	Shows that the maximum number of marks for a part-question or question has been awarded (even though the answer may contain further correct points).
R	The point repeats one already awarded credit.
JE	Candidate has *just* given enough to be awarded a mark.

Examiners may also underline the key words or phrases that contribute to the answer being worthy of credit or which confirm that the answer is wrong. However, care will be needed as candidates often use underlining to indicate an answer in pre-prepared material. Some also use red ink for this.

Transferring marks

Transfer the circled 'whole question' marks to the appropriate boxes on the front of the question paper.

Total the marks and enter this number in the Total box.

Check you have transferred and totalled the marks correctly.

Get your checker to check that
- the number of marks awarded for each task/question/part question equals the number of ticks
- task and question totals are correct
- marks are correctly transferred to the front of the question paper
- the question paper total is correct.

Transfer the totals onto the Centre MS2, taking care that the correct mark is written beside each candidate and that the lozenges are filled in correctly.

Get your checker to check that you have completed the MS2 correctly.

Send MS2s to Cambridge as soon as they are ready using the labels provided– you do not need to wait for the batch dates.

Never send scripts and MS2s in the same package.

If you are unsure what to do at any stage:

- look in the Instructions for Examiners handbook
- look at the Marking Guidelines for ICT Examiners
- contact your Team Leader, Principal Examiner, Chief Examiner or the ICT Subject Team for advice.

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
- Design team/department
- Operations Director
- Manufacturer
- Warehouse (manager)
- Accounts department

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.
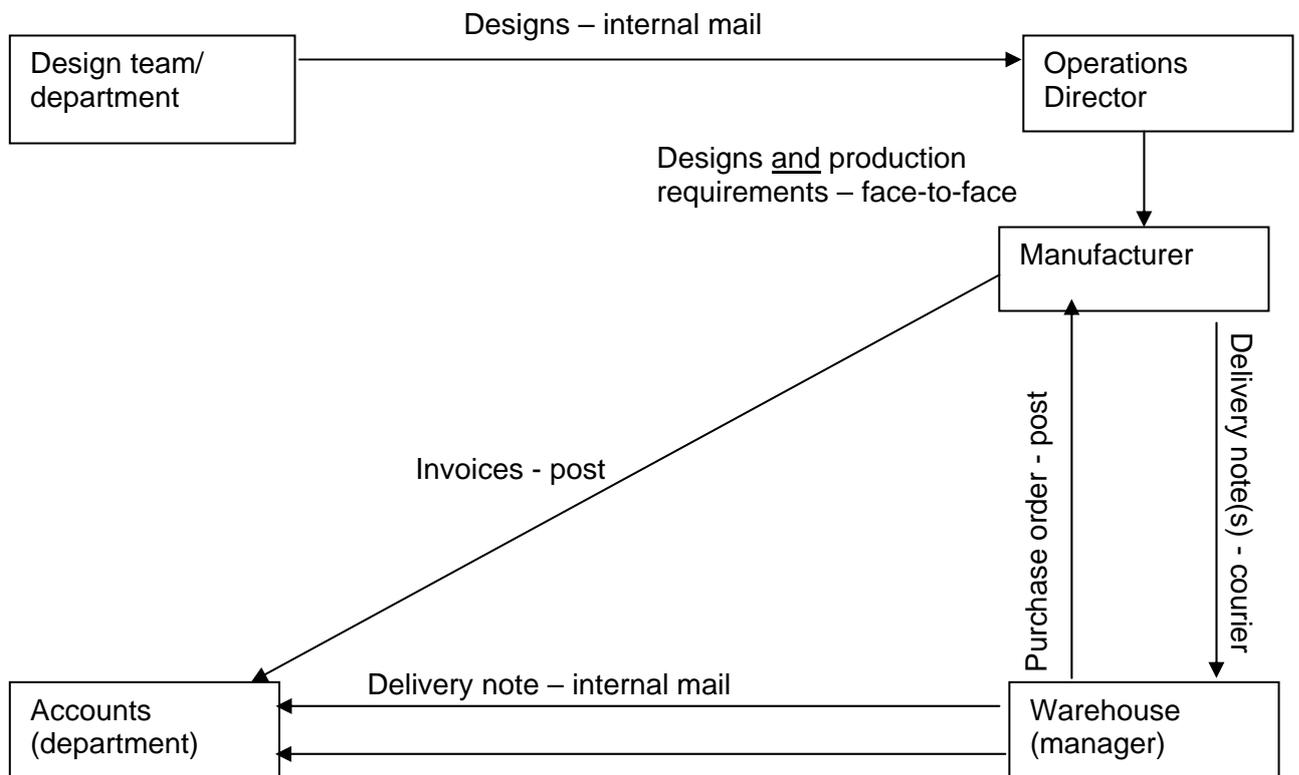
Task 3

AO4 is assessed through this task.

AO4 Marks	Guidance
3	A strength <u>and</u> either a weakness in the method(s) used identified or suggestions for improving own performance.
2	A strength <u>or</u> 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 both positive **and** negative impacts of providing mobile devices (with detailed explanations). Examples are applied to the organisation, and directors and managers of Logos R Us. 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 an understanding of the task and may include positive **or** negative impacts of providing mobile devices with some explanations, or explanations of how mobile devices might be used. Some examples are applied to the organisation, and directors and managers of Logos R Us. 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 Logos R Us, or simple descriptions of mobile devices. 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.

Annotation:
- P – valid points not related to Logos R Us
- D – description of mobile devices
- A – application – how managers and directors can use them. Must relate to what they actually do.
- I – impact (on managers and directors and organisation) +/- (DNA references to staff/employees or similar)
- NR – not relevant eg impact on the environment/other staff

To include consideration of:
- Application
  - Sales manager can show catalogue on laptop
  - Enter orders directly into SOP system remotely
  - Use mobile phone to check stock levels with warehouse
  - Operations Director/R&D Manager can use mobile phone to keep in contact when abroad
  - Use WAP phone/wireless laptop/blackberry to check emails
  - Use PDA to keep diary of appointment/take notes of meetings with manufacturers
  - R&D Manager can use digital camera/mobile to photograph processes
  - Send back to research assistants for analysis
  - Marketing Manager at trade shows can record contact details of potential customers on laptop/PDA
  - Marketing Manager/Sales Manager etc use GPS to find destinations
- Impact on directors and managers
  - Can work remotely
  - More personal flexibility
  - Always on call
  - Responsibility for equipment
  - Use of blackberry can be addictive and impact on non-working time
  - Technical problems when off-site
  - Directors and managers may need training
- Impact on Logos R Us
  - Provides positive image of company
  - Can always contact managers/directors to keep informed of new developments
  - Managers/directors have accurate knowledge of stock levels
  - Possibility of increased business
  - Less delay in processing orders/carrying out research
  - Equipment may be used for personal activities
  - Initial cost of contracts/upgrades
  - Risk of equipment being lost/stole/damaged
  - Costs of insuring mobile equipment

[15]

Section A

1   Marketing (1) CAO
    three of
    - liasing with design department
    - produce updated catalogue (twice a year)
    - runs stands at trade shows (to publicise catalogue)
    - responsible for all advertising
    - carrying out research.
    1 mark per point to max 3

                                                                        [4]

2   Any **four** of
    - (R&D Manager) uses results of market research to determine consumer trends
    - finds out about new materials <u>and</u> techniques
    - obtains samples for testing
    - visits manufacturers
    - tests samples
    - produce prototype garments.
    1 mark per point to max of 4

                                                                        [4]

3   Any **two** of
    - Human Resources (HR) (Manager)
    - Admin (Manager)
    - Chief Accountant
    1 mark per point to max of 2

                                                                        [2]

4   **(a)**   • Item number
             • Quantity
             1 mark each   **[2]**

       (b)   **(i)**   • size
                      • colour
                      1 mark each

                                                                                             [2]

       (b)   **(ii)**   Selected from drop down lists

                                                                                             [1]

       (c)   <u>Purchase</u> order

                                                                                             [1]

       (d)   Any **five** of
             • quantity subtracted from number in stock
             • number remaining compared with re-order level
             • item <u>added</u> to order list
             • check number on list from each manufacturer
             • if >3 generate purchase order
             • number remaining <u>subtracted</u> from required stock level
             • to calculate number to be ordered
             • (manufacturer ID used) to look up manufacturer details
             1 mark per point to max 5

                                                                                             [5]

       (e)   Any suitable suggestion eg
             • a design might be about to be replaced (1) so no further stock is needed (1)
             • a customer may have placed a large order (1) so that extra stock is needed. (1)
             • order can be cancelled (1) if error in data entry (1)
             Up to 2 marks - point plus expansion

                                                                                             [2]

       (f)   Any suitable suggestion eg
             • more than three garments must reach re-order level (1) may completely run out
               of some before order is made (1)
             • human error – incorrect quantities may be entered (1) so stock level on system
               may not be correct (1)
             Up to 2 marks – point plus expansion

                                                                                             [2]

5 A description to a maximum of 10 from:
hardware
- stand alone computer (1) controls a number of embroidery machines (1) with scanner attached (1) and small thermal printer (1)

software
- specialist software (1st) to convert image into control file (1)
- database of available thread colours (1st) each with a unique number (1)

input data
- picture of <u>logo</u> (1st) scanned in by Chief Embroiderer (1)
- customer ID (1st) entered if existing customer (1)
- required position of logo (1st) entered using keyboard (1)

outputs
- control file (1st) to control embroidery machines (1)
- slip (1st) includes customer ID (1) colour thread for each holder (1) logo position for each garment (1)

processes
- <u>convert</u> image of logo (1) <u>to instructions</u> in control file (1)
- <u>compare</u> colours in logo (1) with database of available thread colours (1)
- <u>selects</u> matching thread colour (1) to identify four thread colours to be used (1)

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

[10]

6   **(a)**   Any **one** of
- order forms sent out with catalogue are pre-printed with <u>customer ID</u> (1) so less chance of confusion when order received (1)
- order processing clerk only has to enter customer ID (1) because customer details already on the system (1)
- customer does not have to provide picture of logo (1) as already on SOP system (1)

Up to 2 marks each to max of 2

[2]

   (b)   Any **two** of
eg
- catalogue printed twice a year (1) wasting time and money (1)
- orders are hand-written (1) order processing clerk may have problems reading handwriting (1) may make errors in entering order (1)
- orders must be posted (1) which may be delayed or lost (1)
- customer may order garments that are out of stock (1) unless they phone first (1)

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

[4]

   (c)   **(i)**   Any suitable improvement suggested and explained
eg
- create a website (1) providing access to online catalogue (1)
- set up secure website/extranet (1) so customers can log in using user name and password (1)
- set up e-commerce (1) so that customers can order online (1)
- send out catalogue on CD (1) could include order form template (1) so that customer could complete electronically and email (1)

Up to **two** marks each to max of 2

[2]

     (ii)   A suitable benefit explained that matches the improvement
eg
- product range can be updated easily (1) much cheaper than reprinting paper catalogue (1)
- customers know stock availability (1) so less chance of disappointing customers (1)
- customers enter own requirements (1) less chance of errors from not being able to read hand writing (1)
- CDs are cheaper to produce and post (1) than printing and posting paper catalogues (1)

Up to **two** marks each to max of 2

[2]

     (iii)   A suitable problem identified that matches the improvement
eg
- may be expensive to set up website
- website will need to be maintained
- need for security
- customer concern over security issues
- customers may need to know customer ID

One mark each to max of 1

[1]

7   **(a)**   Copyright, Designs and Patents Act CAO

                                                                                      [1]

     (b)   Makes Logos R Us the owner of the designs (1)
                Only Logos R Us may legally copy, adapt and sell the designs (1)
                Other people need permission to use the designs (1)
                Logos R Us may charge (1)
                Logos R Us can sue anyone who uses the designs (1) without permission (1)

                                                                                  [3]

Section B

8 **(a)** The sale of goods

[1]

(b) Any **one** of
- Financial services (1)
  - o provided by banks/building societies etc (1)
  - o hold accounts/lend money/provide mortgages (1)
- Utilities services (1)
  - o provided by gas/water/electricity (1) buy from suppliers/maintain supplies/monitor use/charge by amount used (1)
  - o provided by bus/train/airline companies (1) provide transport/sell tickets (1)
- Logistics services (1)
  - o provided by courier/haulage companies (1) to transport goods from place to place (1)
- Business services (1)
  - o Provided by agencies (eg employment/administration) (1) to recruit staff/copy documents (1)
- ICT services (1)
  - o Provided by help desks/network suppliers (1) to provide software support/remote network management (1)

Or any suitable service or description

1 mark for example and max 2 for description

[3]

9 **(a)** When personal data stored on paper (1) individuals had to physically break in to steal it (1). Now huge amounts stored on computer (1) records can be easily searched on any criterion (1) can be easily transferred electronically (1) from one organisation to another (1) or from country to country (1) can be accessed and stolen remotely (1).
Up to 4 marks

[4]

(b) Any **two** of
- the right of access to their personal data (1) must apply in writing and (probably) pay a fee (1)
- the right to prevent processing (1) that is likely to cause them damage or distress (1)
- the right to prevent processing for direct marketing purposes (1) can indicate preference when data is collected (1)
- the right to have data corrected, blocked, erased or destroyed (1) if it is inaccurate (1)

Up to 2 marks each to max 4

[4]

10 **(a)** To keep track of money (1) going into or out of the organisation (1) to ensure the organisation remains profitable (1) by forecasting the future cash flow (1)

[2]

(b) Any **three** of
- sales ledger (1) record of all sales made (1)
- purchase ledger (1) record of all purchases made (1)
- general ledger (1) summarises accounts from sales and purchase ledgers (1)
- balance sheet (1) lists the assets, debts and owners' investments <u>at a particular date</u> (1)
- income statement (1) lists revenue, expenditure and net income for a particular period (1)
- cash-flow forecast (1) keeps track of cash receipts and payments to forecast future cash flow (1)
- invoice (1) request for payment for goods or services (1)
- customer statement (1) summary of amount due for a particular time period (1)
- profit and loss account (1) shows details of income and expenditure (1)
- cheques (1) to pay suppliers (1)
- trial balances (1) model the financial state of the company (1)
- budget statement (1) proposed spending for future set periods (1)
- receipt (1) confirmation of payment (1)
- BACS instruction (1) to bank to transfer funds (1)
- VAT returns (1) details of VAT paid and VAT claimed (1)

DNA processes

Up to 2 marks each to max 6

[6]

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 next page)

1 mark available for each of:

Consistency of symbols - C

External Entity (passenger) identified – EE

Logical order of processes - L

1 mark for each correct process with associated flows/data stores - P (Max 9)

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) (see next page)

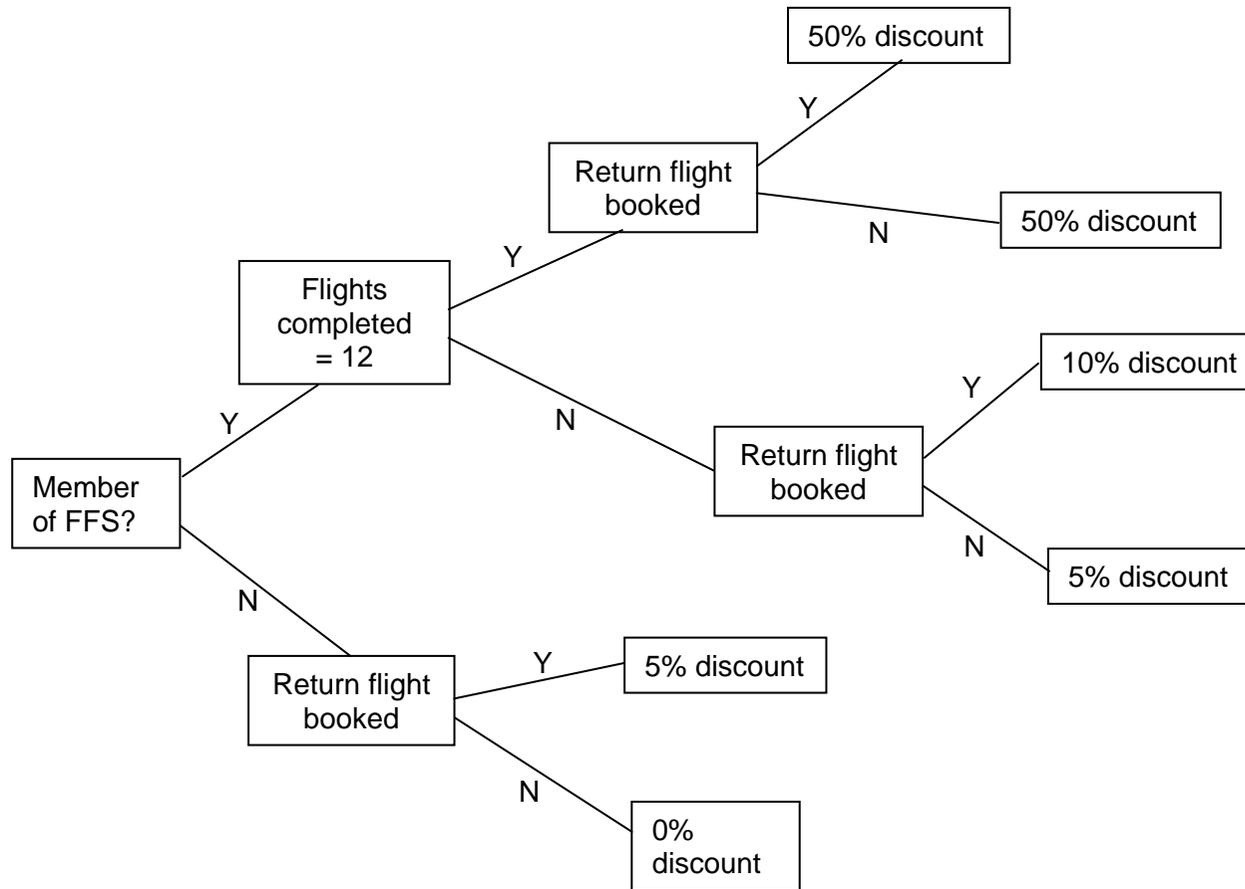1 mark for correct structure

1 mark for correct initial condition

1 mark for all decisions shown

1 mark for correct labelling of decisions

1 mark for each correct condition/outcome (Max 6)

Table 2

```
┌──────────────┐        ┌──────────────────┐        ┌──────────────────┐        ┌──────────────────┐
│  Passenger   │──────▶ │ Advises of flight│──────▶ │ Details recorded │──────▶ │ Flight requirements│
│              │        │   requirements   │        │                  │        │       form        │
└──────────────┘        └──────────────────┘        └──────────────────┘        └──────────────────┘
```

Passenger → Advises of flight requirements → Details recorded → Flight requirements form

Details recorded → Details entered and checked

Details entered and checked ↔ Booking system

Flight requirements form → Details entered and checked

Details entered and checked → Details confirmed

Booking system → Details confirmed

Details confirmed → Frequent flyer details updated

Frequent flyer details updated → Frequent flyer records

Frequent flyer details updated → Total cost calculated

Frequent flyer records → Total cost calculated

Total cost calculated → Booking system

Total cost calculated → Total cost recorded

Flight requirements form → Total cost recorded

Total cost recorded → Cost of flights advised

Cost of flights advised → Passenger

Passenger → Payment details recorded

Payment details recorded → Booking system

Payment details recorded → Booking reference and flight details generated

Booking system → Booking reference and flight details generated

Booking reference and flight details generated ↔ Flight details

Booking reference and flight details generated → Passenger

Table 3

Task 4 (5 marks)

1 mark each for (Max 5):

- Use of colour/font/white space
- Logical order of information on screen
- Security indication
- Clear space for passenger details
- Identification of Island Fly
- Space for Frequent Flyer scheme membership number
- All data/information shown is appropriate (eg Passenger name, address, contact number, date/time of flight, return/single, payment details/type) with no omissions/extra data required
- Use of validation/drop down boxes/option boxes/radio buttons where appropriate
- Discounts applied
- Total cost of flight
- Booking reference number

No marks awarded for a design done within a web authoring package.

Section A

Note: IF = Island Fly

Question		Answer	Mark
1		**One of the purposes of the proposed system is standardise the software used.** **Describe two other purposes of the proposed system.** *Any 2 from, max 2 per purpose:* To solve the problems caused by the current system (1) example of problems given (1) To produce reports as defined by owner of IF(1) example of reports given (1) To improve communication (1) between head office <u>and</u> hangar (1) To increase the security of information (1) held on the computers in <u>head office</u> (1).	[4]
2	(a)	**Describe one functional requirement that has been defined by the owner.** *Any 2 from:* To produce reports (1st) on the number of bookings for each leg of the schedule/amount of revenue generated for each leg/the number of bookings for each day of the working week (1) To keep records relating to the Frequent Flyer scheme (1st) up-to-date (1)	[2]
	(b)	**Describe the defined non-functional requirement that relates to software.** *Max 2* To use the same software vendor (1st) as the current operating system (1) to provide an upgraded operating system (1) To standardise the <u>applications</u> software (1st) throughout the company (1)	[2]

Question	Answer	Mark
3	**Describe the hardware constraints that have been defined by Island Fly.** *4 from:* The existing computers at the head office and hangar (1st) be included into the proposed system (1) Provide a laptop computer (1st) for the owner (1) that has Internet access (1) Upgrade all peripherals (1)	**[4]**
4	**Describe two problems, caused by the current system at Island Fly, that are having a direct impact on the Frequent Flyer scheme.** *Max 2 per description, any 2 from:* Members records are not being kept up-to-date (1st) leading to incorrect discounts being given (1) Details of return flights taken are not being updated (1st) number of qualifying flights are incorrect (1) Frequent Flyer records are not linked to passenger details (1st) passenger dissatisfaction when incorrect discounts are given (1)	**[4]**
5	**The owner of Island Fly has requested that the security of the data and information held on the computers at head office be increased.** **Explain how user names and passwords could be used to achieve this.** *6 from:* Can be used to show audit trails (1) who has accessed ie data/websites (1) reduces risk of unauthorised access to system (1) must be changed regularly (1) not a recognised/memorable word/made up of letters and numbers (1) Used to determine access rights (1) different groups of staff/end users within IF (1) would have access to data (1) dependant on the job role they do (1) eg admin staff need access to all passenger details (1)	**[6]**
6	**Investigations must be completed during the feasibility stage.** **Describe two advantages of using questionnaires as an investigation method in Island Fly.** *Max 2 for each advantage eg:* All members of IF/large group (1) can be asked the same questions (1) Comparisons between answers (1) easy to formulate/% can be determined (1) More cost effective method (1) some staff of IF work long distances away from Blackpool/at The Isle of Man & Belfast (1) Can be done anonymously (1) can provide honest answers/not biased (1)	**[4]**

Question	Answer	Mark
7	**Explain, using examples relating to Island Fly, the different types of maintenance strategies that can be used.**	**[1]**
	Band Mark Range	
	H 9 – 12 Candidates will show a clear understanding of the question and include **detailed** explanations of a range of maintenance strategies using examples relating to Island Fly.	
	Examples will relate to IF	
	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 explanations of a range of maintenance strategies. Explanations may be limited.	
	Some examples will relate to IF.	
	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 – 4 Candidates will demonstrate a limited understanding of the question.	
	Examples, if given, may not relate to IF.	
	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.	
	Adaptive – occurs when IF has a need that the system must fulfil. Owner already concerned about the impact of any new legislation.	
	Example	
	Also considering expanding the function of IF, can be used to incorporate secure website with on-line booking & payments.	
	Perfective – enhances the system, usually done at the request of the users/IF. Does not change the overall functionality of the system.	
	Example	
	Can add features to assist users, such as a macro to print a report, change in corporate style.	

	Corrective – also known as remedial maintenance, carried out if reports not as required, doesn't process data as required or specified. For example, IF may need different time scales in reports eg monthly/weekly – this will be completed if time wrong. Can be completed through use of a patch issued by developers to IF. **Preventative –** attempts to solve problems before they occur. By completing this the new system at IF will have the shelf-life extended. For example system has routines in place to be run automatically, virus checking of emails, disc scans, automatic back-up routines, centralised back-ups completed at a given time schedule.	
8	**Identify and explain a strategy that could be used for staff who work in the hangar.** *1st mark for identification, up to 4 for justification.* On-site/Training provider (1st) used if a customised off-the-shelf system is implemented (1) carried out when system has been implemented/installed (1) only need training on part of system they are going to be using (1) training needs to be specific to the new system (1) need basic IT training (1) this would be generic on basic skills (1) eg accessing Internet/email (1)	**[5]**
9	**The new system at Island Fly could be implemented using the phased implementation method.** **Explain why this method is suitable.** *4 from:* Requires selected parts of organisation to use new system (1) IF have three main parts to organisation (1) could be installed in Admin office initially (1) most records held here (1) when the system works (1) then installed at offices at The Isle of Man/Belfast (1) and the hangar (1)	**[4]**
10	**Identify the most appropriate type of software for storing these records, justifying your choice.** Database (1st) can be relational (1) so updates are global (1) no redundant data (1)	**[3]**

Section B

Question		Answer	Mark
11		**Describe the following implementation methods.**	**[3]**
		(i) Direct/big bang The riskiest implementation method (1) new system completely replaces old system (1) on a given day (1) any problems can lead to data loss (1) should be used during a quiet time in the business (1)	
		(ii) Pilot Selected tasks completed using new system (1) all other tasks use old system (1) as confidence in new system increases (1) another tasks is brought into new system (1) this approach continues until all tasks are completed using new system (1) this approach limits negative effects on business if anything goes wrong (1) takes a long time to implement (1) costly in terms of time and staff costs (1)	**[3]**
12	(a)	**Explain the function of a L0 dataflow diagram (context diagram).** *4 from:* shows the entire system (1) as a single process (1) details data flows (1) between the system and the external entities (1) fixes boundaries of the system (1)	**[4]**
	(b)	**Draw and label two components of a systems flowchart.** *Any 2 from: symbol and label must match* Report/document/form/output (1) correct symbol (1) Process or operation (1) correct symbol (1) Decision (1) correct symbol (1) Data store (1) correct symbol (1) Flow of data/information (1) correct symbol (1)	**[4]**
13		**Evaluate the use of rich picture diagrams as a tool in the systems life cycle.** *Any 6 from: MAX 4 if only advantages/disadvantages given* An informal method of modelling data flows (1) Shows what the system is about using simple pictures (1) **Advantages eg:** Provides an overview at the beginning of the investigation process (1) Shows the important processes and links (1) on 1 side of A4 paper (1) Easily understood by clients (1) **Disadvantages eg:** System can be too complicated (to fit on 1 side of A4 paper) (1) Staff can describe the processes in too much detail (1) analyst may find it difficult to select important processes (1) May over-simplify the system being analysed (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-release material

Task 2
Network diagram showing a peer-to-peer network **(no marks if candidate shows a server)**
Any **six** of
A   <u>network</u> printer (or connection to network shown)
B   patch panel
C   hub/switch or wireless access point
D   router
E   modem
F   bridge (between office computers and café computers)
G   UPS
H   cabling positioned safely eg not across walking areas.

[6]

Cable and connectors
1 mark for matching cable and connector
        (eg UTP/RJ-45, STP/RJ-45, Wireless/USB or PCMCIA, Fibre optic/ST or SC)

[1]

1 mark for appropriate cable and connector for IEC network
        (eg UTP/RJ-45, Wireless/USB or PCMCIA)
(do **not** accept fibre)

[1]

1 mark for description of suitability of cable choice
     (eg covers required distances/UTP; acceptable speed/UTP; no need for wiring/wireless)

[1]

Other network components
1 mark for identification of appropriate connecting equipment
        (eg router, hub/switch or wireless access point/ wireless hub, bridge)

[1]

1 mark each for description of suitability of connecting equipment from
- controls traffic/forms connection to Internet/segments network(1)
- justification (eg router – allows shared Internet access;
                    hub - simple, low cost;
                    switch - better security, faster transmission;
                    WAP - no need for cabling;
                    bridge – separates café and office networks) (1)
Max 2 marks   **[2]**

Any **two** items of additional hardware identified from
- network printers
- <u>portable</u> backup device
- network interface cards
- UPS

1 mark each to a maximum of 2 **[2]**

1 mark each for description of suitability of up to **two** hardware items from
- network printers – no need for server/direct access to print queue for all users
- portable backup device – data security for each computer in office
- network interface cards – control access to network media
- UPS – allow continuous operation/reduce risk of loss of data due to power fluctuations

1 mark each up to a maximum of 2 marks **[2]**

1 mark for any **one** item of additional software/configuration identified
- network operating system
- network drivers
- protocols
- email software
- print queue software.

1 mark
[1]

1 mark for description of suitability of software item chosen from
- network operating system – controls operation of network
- network drivers – deal with operation of network interface cards
- protocols – (eg NetBEUI, TCP/IP) settings for communication on network
- email software – allows internal communication between users on the network
- print queue software – controls printing for users.

1 mark
[1]

Evaluation

Mark	Guidance
3	A strength and a weakness in the method(s) used is identified
2	A strength or a weakness in the method(s) used is identified
1	Some comment is made on method(s) used

Task 3

Band	Mark Range	
H	7-9	Candidates will show a clear understanding of the task by describing in detail how customers of IEC might use services provided by a website. 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 and may give limited descriptions of how customers of IEC might use services provided by a website. 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 services that might be provided on a website. 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 eg:

Service (S)	Use (U)	Description (D)
e-commerce	book holiday packages online	able to pay for them/check availability/compare prices
bulletin board/discussion forums	customers submit reviews	of destination or activities
web-based marketing and advertising	customers can be informed	of latest offers
file storage	customers can upload files/photographs	as back up/to share them/save storage on portable devices

Section A

1   Advantage

1 mark for identification and 1 mark for expansion of any of eg:

- wider choice of options (1) than IEC can offer themselves (1)
- access to email (1) more contact with the company (1)
- on-line booking (1) independently or with an adviser (1)
- quicker access to customer details (1) when rebooking (1).

Disadvantage

1 mark for identification and 1 mark for expansion of any of eg

- likely to have to wait for a machine (1) other customers using it (1)
- have to pay to use Internet (1) adds to cost of holiday (1)
- takes time to browse (1) without being directed to anywhere specific (1)
- increased risk (1) to personal privacy (1).

[4]

2   **(a)**   Any three of:
- all computers provide services
- all computers use services of other computers
- files are distributed throughout the network
- there is no central server
- file sharing is controlled by individual computers
- only a few computers on the network
- no central management of security.

[3]

(b)   1 mark for identification and 1 mark for expansion of any **two** of
- each user can have complete control (1) over their own machine (1)
- there will be less need for a network manager (1) users manage own machines (1)
- there will be a maximum of 9 or 10 users (1) so small network (1)
- peer-to-peer is the cheaper option (1) as no server costs (1)
up to 2 marks for point made and up to 2 marks for relevant expansions

[4]

3   **(a)**   1st mark for a correct diagram
            (not necessarily labelled)
            plus any **three** from:
            1 mark for showing direction of flow
            1 mark for each correct label up to max 3

                                                      [4]
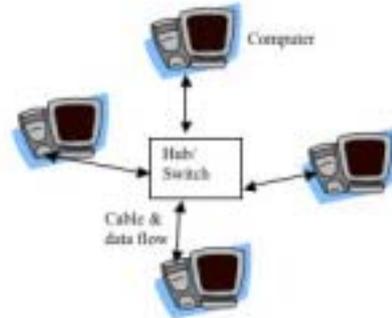
     (b)   Any **three** of
- data travels in both directions
- hub broadcasts data to all computers
- switch makes a connection between sending and receiving computer
- data travels between computer and hub/switch
- all data travels through the hub/switch.

                                                      [3]

     (c)   1 mark for identification and 1 mark for expansion of any of:
- totally dependent on the hub (1) if it breaks the network stops (1)
- first come first served (1) some computers may have to wait (1)
- collisions can happen (1) if two computers send at the same time (1)
- volume of cabling (1) raises cost (1).

                                                      [2]

4   **(a)**   1 mark for identification and 1 mark for expansion of **two** of:
- <u>wireless</u> network card (1) fits inside computer / sends & receives signals (1)
- <u>wireless</u> hub / access point / router (1) sends & receives signals from all computers (1)
- external wireless antenna (1) plugs into computer / better signal (1).

                                                      [4]

     (b)   Any **two** of:
- no need for wiring
- computers can be moved around more easily
- could give wireless access to customers with laptops
- cheaper than cable.

                                                      [2]

5   **(a)**   1 mark for identification and 1 mark for expansion of any of:
- receives requests for web pages (1) from clients (1)
- downloads pages from Internet (1) and transfers to client on request (1)
- checks the integrity (1) of each page (1)
- stores frequently accessed pages (1) for quicker access (1)
- adds security (1) filters requests for web pages (1).

                                                      [2]

     (b)   1 mark for identification and 1 mark for expansion of any of:
- stores enough power (1) to allow a computer to shut down correctly if power cut (1)
- protects computer equipment (1) from power surges (1).

                                                      [2]

6   **Two** from:

Modem (1st mark):

1 mark for identification and 1 mark for expansion of any of:
- provides a connection point (1) between computer and telephone line (1)
- converts signals (1) between computer signals and telephone signals (1).

Communications line(1st mark):

1 mark for identification and 1 mark for expansion of any of:
- provides the connection (1) between network and ISP (1)
- transfers data (1) from modem to modem (1).

(Broadband) router(1st mark):

1 mark for identification and 1 mark for expansion of any of:
- inspects IP addresses (1) forward data (1)
- stores IP addresses (1) of all computers on the network (1).

Microfilter (if telephone used) (1st mark):

1 mark for identification and 1 mark for expansion of any of:
- splits frequencies (1) into data and voice(1)
- suppresses noise (1) improves signal (1).

[6]

7   One of**:**

FTP – 1st mark
1 mark for identification and 1 mark for expansion of any of:
- standard for transferring files (1) on a WAN (1)
- determines the format of files (1) while being transferred (1)
- sends data in blocks (1) with error checking (1).

HTTP – 1st mark
1 mark for identification and 1 mark for expansion of any of:
- standard for transferring web pages (1) on the Internet or an intranet (1)
- determines how files are requested (1) by a browser (1)
- defines how a file is identified (1) by a URL (1)
- has a secure version (1) HTTPS (1).

[3]

8   **(a)**   Any **one** of:
- date and time of communication
- duration of communication
- connection used
- protocols used
- source of data transferred
- destination of data transferred
- size of data transferred
- file type of data transferred.

[1]

(b)   Any **four** from:

Look up (1) any entries for the same problem (1) check that the circumstances were the same (1) for both problems (1) find the solution (1) for the matching problem (1) log the current problem and its solution (1) for future reference (1).

[4]

9   **(a)**   Any three of:
- email
- access to the WWW
- data file exchange
- e-commerce
- access to bulletin boards and discussion forums.

[3]

(b)   Any three of:

Advantages:
- customers will be more likely to spend money in the cafe
- customers can give feedback and read reviews of destinations
- customers will stay loyal.

Disadvantages:
- needs careful security
- customers will need help to use the Internet
- may lose some commission sales as customers book their own.

Accept advantages and disadvantages to the customer.
Max 2 for advantages, max 2 for disadvantages

[3]

Section B

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

use ftp software OR web design software (1) to transfer files (1)
connect to ISP server OR configure software to find ISP server (1) to find area to copy files to(1)
enter username and password (1) to connect to server (1)
copy all web page files (1) to area on ISP server (1)
access website through browser (1) to check that everything works correctly (1)
close connection (1) when transfer complete (1).

[4]

  (b) **(i)** Any of:
- number of available frequencies
- range of frequencies for transmission
- volume of data over time.

[1]

  (ii) 1 mark for point and 1 mark for expansion of either of
- Higher bandwidth (1) more bits sent at once (1)
- More bits at once (1) less time to send whole file (1)
- More users sharing bandwidth (1) less speed (1).

[2]

  (iii) mark for
- size of file divided by bandwidth.

[1]

11 Any two from:
- uses the services of another machine (1) rather than performing functions itself (1)
- requests file storage/printing/web pages (1) from a dedicated server (1).

[2]

12 1 mark for point and 1 mark for expansion of any two of eg:
- enter username and password (1) to gain access to bulletin board (1).
- open thread (1) select a posting and reply (1)
- create a new thread (1) add text and submit (1).

[4]

13 Any two of:
- height of desks
- distance of user from screen
- enough space
- adequate lighting
- no glare on screen
- ergonomic mouse/keyboard
- adjustable chair

[2]

14 1 mark for point and 1 mark for expansion of any two of eg:
- lock equipment (1) to desks (1)
- restrict access (1) to computer rooms (1)
- use security cameras (1) to monitor computer equipment (1)
- keep equipment away from public areas (1) in locked rooms (1).

[4]

Grade Thresholds

Applied GCE (H115/H315/H515/H715)

June 2008 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	45	40	35	30	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	86	76	66	56	46	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	56	49	42	0
	UMS	100	80	70	60	50	40	0
G054	Raw	100	68	61	54	48	42	0
	UMS	100	80	70	60	50	40	0
G055	Raw	100	66	58	50	42	35	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
2.6	13.3	33.8	59.3	79.7	100.0
There were 10138 candidates aggregating in June 2008.					

Advanced Subsidiary GCE (Double Award) (H315):

AA	AB	BB	BC	CC	CD	DD	DE	EE	U
1.1	4.4	11.1	19.8	33.1	45.8	57.6	68.7	80.1	100.0
There were 793 candidates aggregating in June 2008.									

Advanced GCE (H515):

A	B	C	D	E	U
5.3	22.0	48.9	75.5	92.2	100.0
There were 6817 candidates aggregating in June 2008.					

Advanced GCE (Double Award) (H715):

AA	AB	BB	BC	CC	CD	DD	DE	EE	U
0.8	3.5	9.5	17.7	29.1	42.7	58.9	75.6	89.6	100.0
There were 1186 candidates aggregating in June 2008.									

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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