OCR
RECOGNISING ACHIEVEMENT

GCE

# Applied ICT

Advanced GCE

Unit **G054:** Software Development

# Mark Scheme for January 2011

Oxford Cambridge and RSA Examinations

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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 Systems flowchart (See attached example)**

1 mark available for identification of:
- Customer
- Head Office
- Appointment system
- Payment received system
- Warehouse.

1 mark for each correct symbol with associated flows (Max 7)

**Evaluation – 3 marks available**

| **Mark** | |
|---|---|
| 1 | Some comment on method(s) used to develop SFC |
| 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 example)**

- 1 mark for layout
- 1 mark for identification of sections – conditions **and** actions
- 1 mark for consistent notation
- 1 mark for correct number of rules – ie 4
- 1 mark for all correct conditions
- 1 mark for all correct actions
- 1 mark for **each** correct rule column (Max 4).

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

- Use of colour/font/white space
- Logical order of information
- Identification of ACH
- Customer details including unique identifier
- Date and Times of appointments
- Report title
- Merge fields shown/cleaning materials required and allocated. Cleaning staff
- All data/information shown is appropriate with no omissions/extra data required.

**Section A**

Note: ACH = A Cleaner House

| Question | Answer | Mark |
|---|---|---|
| 1 | **During the feasibility study the purpose of the new system is defined.**<br><br>**Explain, using examples from A Clean House, why it is important to clearly define the purpose of the new system.**<br><br>*Max 4 for explanation*<br>To ensure all problems in current system have been identified (1)<br>To make sure all requirements of the new system have been defined (1)<br>To act as a reference point (1st) to ensure that the new system meets the requirements of ACH (1) or the new system will not be appropriate for ACH (1).<br><br>*Allow up to 3 marks for examples*<br>To upgrade applications software/operating system to the same versions (1)<br>To standardise the software (1st) at the head office and the warehouse (1)<br>To increase the security of information (1) held on the computers in head office (1)<br>To produce reports for the owner (1st) example of report (1)<br>To keep records of customers (1st) who have or currently use ACH (1)<br>To reduce errors (1st) all calculations automated. | **[6]** |
| 2 | **User requirements have been defined by the owner of A Clean House.**<br><br>**Describe two defined user requirements that relate to the outputs from the new system.**<br><br>*Max 2 per requirement.*<br><br>To produce reports (1st) the total number of each service completed on a weekly basis/ the amount of revenue that each service brings to the business/the number of houses cleaned each week including a breakdown of number of houses for each number of bedrooms (1).<br><br>A daily automatically generated report (1st) showing which items of stock need to be reordered (1) sent to the administration office (1). | **[4]** |

| Question | Answer | Mark |
|---|---|---|
| 3(a) | **During the development of the feasibility study functional requirements were defined.**<br><br>Describe one functional requirement that has been defined by the administration staff.<br><br>*Max 2 from:*<br>Customer details (1) to be accessible through the use of a unique customer number (1)<br>Details of appointments/invoice numbers/payments made (1) should be recorded and updated automatically (1). | **[2]** |
| (b) | **Describe the defined hardware non-functional requirements.**<br><br>*6 from:*<br>The new system run on the existing computers (1st) The three computers in head office (1) one computer at the warehouse (1)<br>Head office has a total of **four** computers (1st) which must be linked (1)<br>The warehouse has two computers (1) which must be linked (1)<br>Each computer should be connected to a black and white printer (1)<br>The owner would like a net book (1). | **[6]** |
| 4(a) | **During the development of the feasibility study process constraints should be considered.**<br><br>**Describe the defined software constraint**<br><br>*2 from:*<br>Vendor (1st)<br>of applications software/operating system (1) to be kept the same (1)<br>newer versions (1). | **[2]** |
| (b)(i) | **Identify one other process constraint, apart from budget and hardware, that has been defined by A Clean House.**<br><br>Time. | **[1]** |
| (b)(ii) | **Describe how this has been defined by A Clean House.**<br><br>*To be awarded marks for this part of the question b(i) must be correct*<br>*3 from:*<br>Implemented (1st) over a weekend (1) to minimise disruption (1). | **[3]** |

<table>
<tr><th>Question</th><th>Answer</th><th>Mark</th></tr>
<tr><td>5</td><td>Describe the problems caused by the current system which relate to the customers of A Clean House.<br><br>Max 4:<br>Vans arriving at regular customers' houses (1st) when the customers have cancelled (1)<br>Invoices not being given/sent to customers (1st) resulting in loss of revenue for A Clean House (1)<br>Changes to regular customer appointments (1st) such as a change in the service required (1) not being actioned (1)<br>Vans and cleaners have arrived at the wrong location (1st) or on the wrong day (1)<br>Cleaners arriving at customers' houses without the correct cleaning materials (1st) because of problems ordering stock (1).</td><td>[4]</td></tr>
<tr><td>6</td><td>One of the concerns of the owner of A Clean House is lack of security.<br><br>Explain, using examples, how A Clean House could use the Computer Misuse Act if security is breached.<br><br>
<table>
<tr><th>Band</th><th>Mark Range</th><th></th></tr>
<tr><td>H</td><td>9 – 12</td><td>Candidates will show a clear understanding of the question and include detailed explanations with examples, of how ACH can use the Computer Misuse Act<br><br>Examples will relate to ACH<br><br>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.</td></tr>
<tr><td>M</td><td>5 – 8</td><td>Candidates will show an understanding of the question. Limited explanations with examples, are given of how ACH can use the CMA.<br><br>Some examples given relate to ACH.<br><br>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.</td></tr>
</table>
</td><td></td></tr>
</table>

| Question | Answer | Mark |
|---|---|---|

| | | |
|---|---|---|
| L | 0 – 4 | Candidates will demonstrate a limited understanding of the question. Information may be a list of points, with descriptions and little or no explanations.<br><br>Examples, if given, may not relate to ACH.<br><br>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:**

Act introduced, 1990, to protect organisations from hackers. The CMA can be used to prosecute people who breach the security of computer systems.

ACH may have a code of practice – if a member of staff lets someone else use their user name/password then a crime has been committed by the CMA.

The CMA can be used, by ACH, to prosecute those who:

- Access computer material, user names/passwords and access levels unauthorised
- Access with intent to commit or facilitate further offences, for example data is accessed then the data is used, eg accessing customer accounts and using the data held
- Commit unauthorised acts with intent to impair or with recklessness as to impairing operation of a computer eg changes could be made to the software/data or denying service for example stopping access to Internet or email
- Make, supply or obtain articles/malicious code for use eg when the computer is accessed malicious code is installed that will impair the running of the computer.

**[12]**

**7** **The Cleaning Manager of A Clean House will be interviewed during the feasibility study.**

**Describe two advantages and one disadvantage of using interviews as an investigation method.**

*Max 2 per advantage, for each advantage 2 from:*
A rapport can be developed (1st) with the cleaning manager (1)
Questions can be adjusted (1st) as the interview takes place (1)
Additional questions (1st) can be added to gather more information (1).

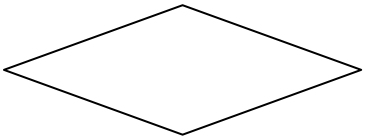
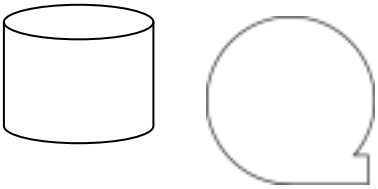
*Disadvantage, 2 from:*
Can be time consuming (1) so costly in terms of time and money (1)
A poor interview/questions (1st) can lead to insufficient or misleading information being obtained (1)
If the organisation is large (1) then not everyone can be interviewed (1).

**[6]**

| Question | Answer | Mark |
|---|---|---|
| 8 | **Following the implementation of the new system, user manuals will be passed to A Clean House.**<br><br>**Explain how user manuals can be used by the staff of A Clean House.**<br><br>*4 from:*<br>Explains how to eg use a system (1) organised by topics or tasks (1)<br>Usually includes a quick-start guide (1) to assist when starting to use the system (1)<br>Used as a reference tool (1) example relating to ACH (1)<br>Can include FAQ's (1) example relating to ACH (1). | **[4]** |

**Section B**

| Question | Answer | Mark |
|---|---|---|
| 9 | **During the design of a new system a physical design specification is developed.**<br><br>**Identify two components of the hardware specification part of the physical design specification.**<br><br>*2 from:*<br>Memory capacity (1)<br>Storage devices (1)<br>Peripheral devices/specifications (1)<br>Data capture equipment (1)<br>Communication equipment (1). | **[2]** |
| 10 (a) | **Diagrams and flowcharts can be used during the analysis and design stages of the systems lifecycle.**<br><br>**Explain the function of a L0 dataflow diagram (context diagram).**<br><br>*4 from:*<br>Provides an overview of the entire system (1st) as a single process (1)<br>details data flows (1st) between the system and the external entities (1)<br>fixes boundaries of the system (1st) shows the interaction (1st) with external entities (1). | **[4]** |

<table>
<tr><th>Question</th><th>Answer</th><th>Mark</th></tr>
<tr><td>(b)</td><td>
Draw and label two components of a flowchart.<br><br>
Any 2 from: symbol and label must match<br><br>
<table>
<tr><th>Label (1 mark each)</th><th>Symbol (1 mark each)</th></tr>
<tr><td>Report/document/form</td><td> </td></tr>
<tr><td>Process or operation</td><td> </td></tr>
<tr><td>Decision</td><td>  </td></tr>
<tr><td>Data store</td><td>  </td></tr>
<tr><td>Flow of data/information</td><td></td></tr>
</table>
</td><td>[4]</td></tr>
<tr><td>11</td><td>
When a system has been developed and tested it needs to be implemented.<br><br>
Describe the pilot implementation method.<br><br>
3 from:<br>
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)<br>
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).
</td><td>[3]</td></tr>
</table>

| Question | Answer | Mark |
|---|---|---|
| 12 | **Evaluate the use of e-learning as a training method.** | |

| Band | Mark Range | |
|---|---|---|
| H | 6 – 7 | Candidates will show a clear understanding of the question and include **detailed** evaluation including the advantages **and** disadvantages of the use of e-learning.<br>Candidates provide a conclusion clearly justifying the use of e-learning as a training method.<br>The information will be presented in a structured and coherent form. There will be few if any errors in spelling, grammar and punctuation.<br>Technical terms will be used appropriately and correctly. |
| M | 3 – 5 | Candidates will show an understanding of the question and include an evaluation including the advantages **and** disadvantages of the use of e-learning. Evaluations may be limited or one sided.<br>Candidates provide a conclusion relating to the use of e-learning as a training method.<br>This may be limited in scope.<br>The information will be presented in a structured format.<br>There may be occasional errors in spelling, grammar and punctuation. Technical terms will be mainly correct. |
| L | 0 – 2 | Candidates will demonstrate a limited understanding of the question.<br>Information may be a list of advantages **or** disadvantages, with little or no explanations.<br>Information will be poorly expressed and there will be a limited, if any, use of technical terms.<br>Errors of grammar, punctuation and spelling may be intrusive. |

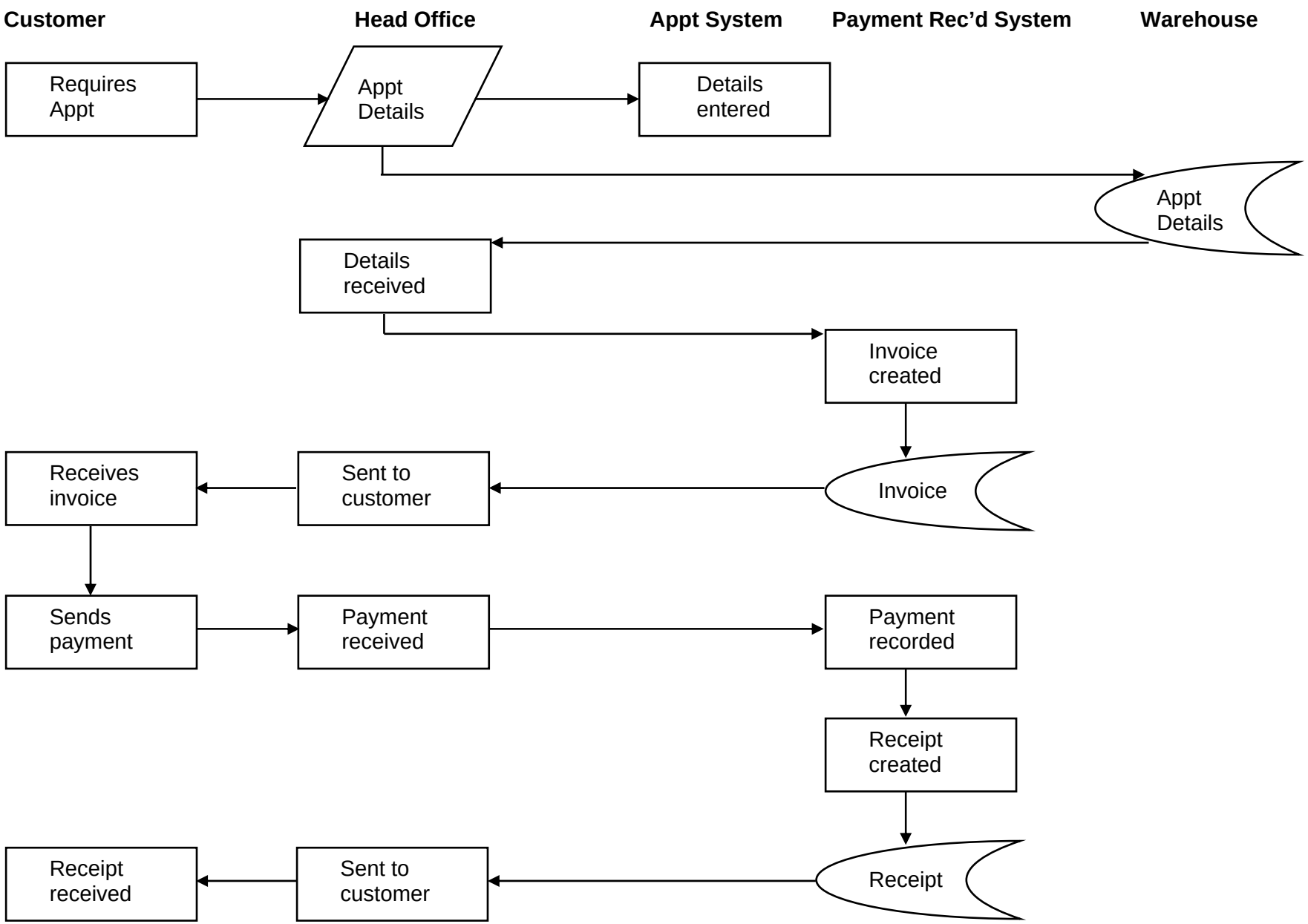
Responses may include:

**Description**
Used as a supplement/addition to other training methods
Can be off-line (CD or DVD based), on-line or used with tutor support.

**Advantages**
Can work at own pace at a convenient time
Assessment tests monitor process
Sections can be revisited to confirm SKU
Available at any time.

Disadvantages
Need good motivation from students
Time management skills needed
May not be appropriate of system is bespoke. **[7]**

**Task 2**


Customer
Head Office
Appt System
Payment Rec'd System
Warehouse
Requires Appt
Appt Details
Details entered
Appt Details
Details received
Invoice created
Receives invoice
Sent to customer
Invoice
Sends payment
Payment received
Payment recorded
Receipt created
Receipt received
Sent to customer
Receipt

**Task 3**

| Rules | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1 service | ✓ | | | |
| 2 services | | ✓ | | |
| 3 services | | | ✓ | |
| 4 or more | | | | ✓ |
| Actions | | | | |
| No reduction | ✓ | | | |
| £10 reduction | | ✓ | | |
| £15 reduction | | | ✓ | |
| £25 reduction | | | | ✓ |

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