OCR
RECOGNISING ACHIEVEMENT

GCE

Applied ICT

Advanced GCE

Unit **G054:** Software Development

Mark Scheme for June 2011

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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 Rich Picture Diagram (See attached example)

1 mark available for each of:
Consistency – C
Customer **and** Warehouse 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 example)

1 mark for consistency
1 mark per entity shown for APPOINTMENT, CUSTOMER, SERVICE, STAFF (Max 4)
1 mark for correctly defined relationships (Max 3)
1 mark for correct identification of primary keys
1 mark for correct identification of foreign keys

Task 4 (5 marks)

1 mark each for (Max 5):

- Use of colour/font/white space
- Logical order of information on screen
- Identification of ACH
- Use of validation features such as drop-down list/option buttons
- Supplier details including unique identifier
- Current stock levels identified
- Reorder level identified
- All data/information shown is appropriate with no omissions/extra data required.

Section A

Note: ACH = A Clean House

Question	Answer	Mark
1	**One of the purposes of the proposed system is to keep records of customers who use or have used A Clean House** **Describe two other purposes of the new system.** *Any 2 from, max 2 per purpose:* To upgrade applications software/operating system (1st) to the same versions (1) To standardise the software (1st) at the head office and the warehouse (1) To increase the security of information (1st) held on the computers in head office (1) To produce reports (for the owner) (1st) example of report (1) Reduce errors (1st) all calculations automated.	**[4]**
2	**User requirements have been defined by the owner of A Clean House.** **Describe two user requirements that have been defined by the owner that relate to the suppliers.** *Max 2 per requirement* To hold supplier records (1st) with each supplier being allocated a unique identifier (1) The re-order levels of each stock item (and supplier details) (1st) should be automatically shown (1).	**[4]**

Question	Answer	Mark
3	**During the development of the feasibility study functional requirements were defined.** **Using examples from A Clean House, explain the term functional requirements.** Explanation – Max 2 Functional requirements are what the user (1) wants the system to do (1). *Examples Max 4*: To keep records of all appointments made by customers (1) To calculate and print invoices (1) To keep a database of customers/ suppliers(1) To record payments/keep accounts (1) To produce reports (1).	**[6]**
4 (a)	**During the development of the feasibility study process constraints should be considered.** **Describe one defined hardware constraint.** *2 from:* The existing computers (at the head office and warehouse) (1st mark) be included into the proposed system (1) Provide a net book (1st) for the owner (1) that can link with the other computers (1) Upgrade all peripherals (1) All computers linked (1).	**[2]**
(b)(i)	**Identify one other process constraint, apart from software and time, that has been defined by A Clean House.** Budget.	**[1]**
(b)(ii)	**Describe how this has been defined by A Clean House.** *To be awarded marks for this part of the question b(i) must be correct*. *2 from:* £20,500(1) for the hardware, software and installation costs (1).	**[2]**

<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 at A Clean House, which relate to the suppliers of the cleaning materials.

6 from:

Stock system currently manual (1st) with records transferred to computer (1) each afternoon (1)
The stock records are not always transferred (1st) due to time pressures (1)
Leading to incorrect stock records being held (1) so incorrect stock orders sent to suppliers (1)
Urgent additional telephone orders (1st) being made by ACH (1)
as materials are out of stock (1)
Supplier details are manually stored (1st) so stock orders (1) are being sent to the wrong supplier (1) leads to a delay in getting the correct stock (1).</td><td>[6]</td></tr>
<tr><td>6</td><td>As A Clean House stores records of its customers they will have to comply with the Data Protection Act.

Explain, using examples, how A Clean House can comply with the Data Protection Act.
<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 comply with DPA Data Protection Act.

Examples will relate to ACH

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 comply with the DPA.

Some examples given relate to ACH.

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>
<tr><td>L</td><td>0-4</td><td>Candidates will demonstrate a limited understanding of the question. Information may be a list of points, description rather than explanations.

Examples, if given, may not relate to ACH.

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.</td></tr>
</table></td><td></td></tr>
</table>

Question	Answer	Mark
	Responses may include: Customers details must be processed fairly and lawfully and they must give their consent to ACH holding their details ACH must tell customers what they are going to do with their data Too much data should not be asked for from customers, and it must be relevant to ACH. ACH must ensure, by checking with customers that their data is accurate and must change it if there are any inaccuracies Data cannot be held longer than is necessary so if a customer stops having their house cleaned ACH must remove their data ACH must make sure their computer systems are secure.	**[12]**
7	**Following the implementation of the new system into A Clean House users have requested changes to the system.** **Identify and describe the maintenance strategy that would be used to implement these changes.** **Perfective** (1st) When it is advantageous to make changes to the system (1) no change to functionality of system (1) makes a good system better (1) usually completed at request of users (1) example of type of change eg add features to assist users, such as a macro to print a report, change in corporate style (1).	**[3]**
8	**The increased security of the data and information held on the computers at A Clean House has been defined as one of the user requirements.** **Identify and describe two logical security measures that could be used by A Clean House.** **Access Levels (1st)** different groups of staff within ACH (1) would have access to the data/information needed to complete their jobs (1) Example given eg personnel records need to be kept confidential/requirements of DPA (1) only owner and staff member can see their records (1). **User Names/Passwords (1st)** Determines access to information/data. (1) provides an audit trail (1) Example given eg Each staff member has a unique password made up of letters and numbers regularly changed, not a recognisable/memorable word (1) reduces risk of hacking (1).	**[6]**

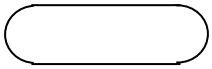
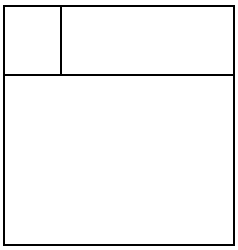
Question	Answer	Mark
9	**Following the implementation of the new system, detailed program specifications will be passed to A Clean House.** **Explain how detailed program specifications could be used by A Cleaner House.** 4 from: If maintenance needed (1) after the implementation of the system (1) the developer would be able to see how the software was constructed (1) It is very unlikely that the developer doing the maintenance (1) would be the same (1) as that who developed the system initially (1).	**[4]**

Section B

Question	Answer	Mark
10	**When a system has been developed and tested it needs to be implemented.** **Describe the following implementation methods:**	
(i)	*Max 3 per method* **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).	**[3]**
(ii)	**Parallel:** 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]**
11	Entity Relationship Diagrams (ERD's) and Data Flow Diagrams (DFD's) can be used during the analysis and design stage of the systems lifecycle.	
(a)	**Explain the function of an ERD** *3 from:* Provides a graphical representation (1) of the structure of data (1) using entities (1) and relationships (1) Primary/ foreign <u>keys</u> (1) are used to create links (1).	**[3]**

<table>
<tr><th>Question</th><th>Answer</th><th>Mark</th></tr>
<tr><td>(b)</td><td>
Draw and label two components of a DFD.

Any 2 from: symbol and label must match

<table>
<tr><th>Label (1 mark each)</th><th>Symbol (1 mark each)</th></tr>
<tr><td>External entity</td><td>  </td></tr>
<tr><td>Process or operation</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>
</table>

<table>
<tr><th>Question</th><th>Answer</th><th>Mark</th></tr>
<tr><td>12</td><td>

Evaluate the informal method of modelling data flows within the systems life cycle.

<table>
<tr><th>Band</th><th>Mark Range</th><th></th></tr>
<tr><td>H</td><td>6-7</td><td>Candidates will show a clear understanding of the question and include detailed explanations of the advantages and disadvantages of the use of informal methods of modelling data flows.
Candidates provide a conclusion clearly justifying the use of the informal method of modelling data flows.
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>3-5</td><td>Candidates will show an understanding of the question and include explanations of the advantages and disadvantages of the use of an informal method of modelling data flows.
Explanations may be limited or more weighted to advantages or disadvantages.
Candidates provide a conclusion relating to the use of the informal method of modelling data flows, although this may be implied.
This may be limited in scope.
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>
<tr><td>L</td><td>0-2</td><td>Candidates will demonstrate a limited understanding of the question.
Information may be a list of advantages or disadvantages, or descriptions 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.</td></tr>
</table>

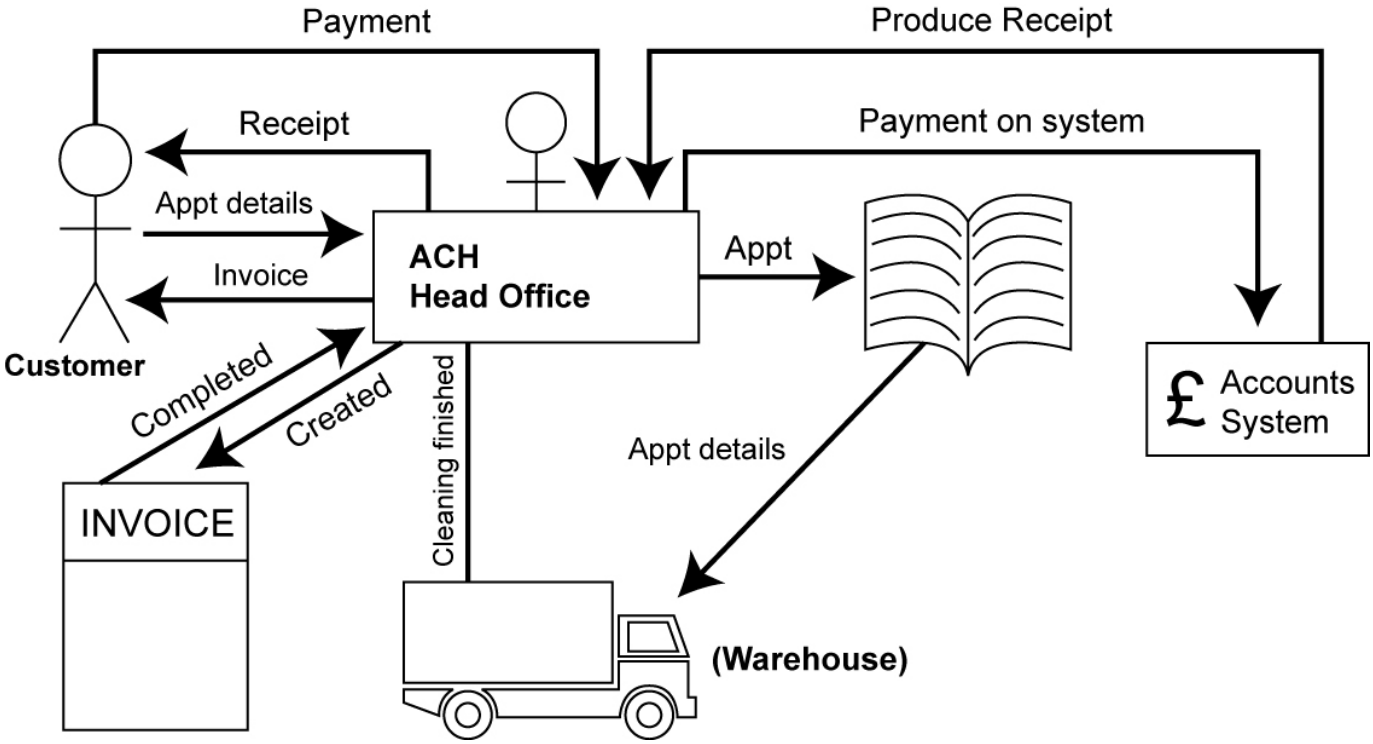
Responses may include:

Description:
Informal methods include tools & techniques such as rich picture diagrams (RPD) and system flowcharts
Use easily understandable symbols.

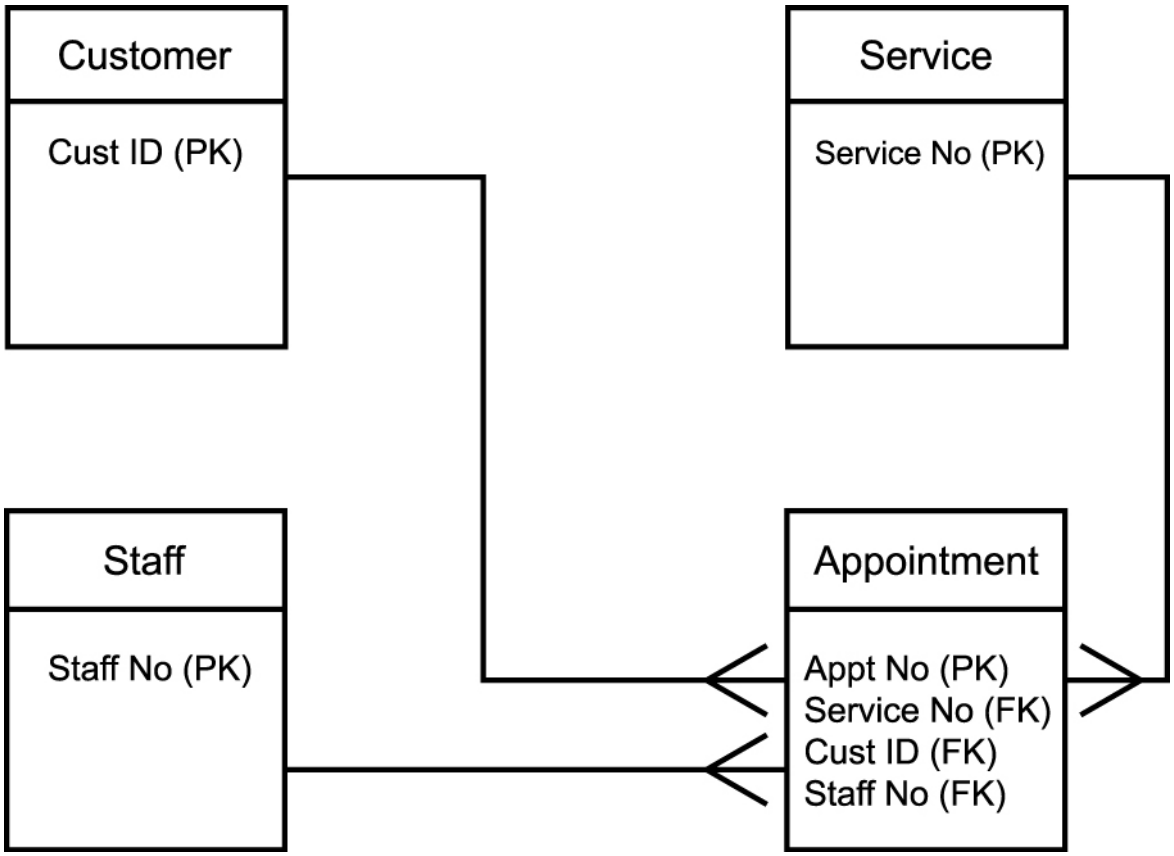
</td><td></td></tr>
</table>

Question	Answer	Mark
	Advantages Usually self-explanatory Enable pictorial visualisation No formal knowledge of analysis is needed to understand an informal method Easy for a client to understand Processes, people and stores can be shown in a simple format enabling a client to identify any omissions Can be developed prior to a formal techniques, such as DFD, being used. **Disadvantages** System can be too complicated to fit on 1 side of A4 paper Staff can describe the processes in too much detail analyst may find it difficult to select important processes May over-simplify the system being analysed.	**[7]**

Task 2


Payment
Produce Receipt
Receipt
Payment on system
Appt details
ACH
Head Office
Appt
Invoice
Customer
Completed
Created
Cleaning finished
Appt details
Accounts
System
INVOICE
(Warehouse)

Task 3


Customer
Cust ID (PK)
Service
Service No (PK)
Staff
Staff No (PK)
Appointment
Appt No (PK)
Service No (FK)
Cust ID (FK)
Staff No (FK)

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