OCR
RECOGNISING ACHIEVEMENT

GCE

Applied ICT

Advanced GCE **G054**

Software Development

Mark Scheme for June 2010

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 L0 DFD (See Appendix 1)

1 mark available for each of:
Consistency – C
Customer clearly identified – E
Warehouse clearly identified – W
Administration office as central node – A
Logical order of processes – L
Direction of flows identified – D

If E/ W and A marks awarded then:
1 mark for each correct flow of information (Max 7)

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 Appendix 2)

1 mark for start and end defined
1 mark for initial decision
1 mark for each correct decision with associated process (Max 8)

Task 4 (5 marks)

1 mark each for (Max 5):

- Use of colour/font/white space
- Logical order of information on report
- Identification of HS
- Date of report
- Supplier details including unique identifier
- Current stock levels identified
- Re-order level identified
- All data/information shown is appropriate with no omissions/extra data required.

Section A

Note: HS = Hideaway Sheds

Question	Answer	Mark
1	**One of the purposes of the new system for Hideaway Sheds is to solve the problems caused by the current system.** **Describe two other purposes of the new system.** *Any 2 from, max 2 per purpose:* To upgrade applications software/operating system (1) to the same versions (1) To improve communication (1) between head office and warehouse (1) To increase the security of (information) (1) held on the computers in head office (1) To produce reports for the owner (1) example of report (1).	**[4]**
2	**The owner of Hideaway Sheds has defined requirements of the new system.** **Explain the importance of defining user requirements during the feasibility study.** *4 from:* Max 2 per requirement If user requirements are **not** defined (1st) the incorrect system may be produced/implemented (1) User requirements need to be referred to (1st) during the development of the system (1) User requirements provide the review criteria (1st) when the system is implemented (1).	**[4]**
3 **(a)**	**During the development of the feasibility study functional and non-functional requirements are defined.** **Describe two functional requirements that have been defined by the administration staff.** *4 from:* Supplier details (1st) Stock supplied by each supplier (1) accessed through a unique supplier number (1) Automatic facilities of the software (1st) should limit user errors (1) Order details and payments (1st) recorded on the software (1).	**[4]**
(b)	**Describe the non-functional requirement that has been defined by the owner.** *2 from:* The new system run on the existing computers (1) The three computers in head office (1) The one computer at the warehouse (1).	**[2]**

<table>
<tr><th>Question</th><th>Answer</th><th>Mark</th></tr>
<tr><td>4

(a)</td><td>During the development of the feasibility study process constraints should be considered.

Describe the hardware constraint that has been defined by the warehouse staff at Hideaway Sheds.

2 from:

Monitors (used in warehouse) (1st) be upgraded (1) to widescreen TFT (1).</td><td>[2]</td></tr>
<tr><td>(b)</td><td>(i) Identify one process constraint, apart from hardware and time, that has been defined by Hideaway Sheds.

Software (1).</td><td>[1]</td></tr>
<tr><td></td><td>(ii) Describe how this has been defined by Hideaway Sheds.

3 from:

The vendor(s) (1st) of the operating system (1) and applications software (1) is to stay the same (1).</td><td>[3]</td></tr>
<tr><td>5</td><td>Some of the problems caused by the current system relate to the stock system used in the warehouse.

Describe the problems relating to the stock system used in the warehouse.

4 from:

Stock system currently manual (1) transferred to computer (1)
Wednesdays and Fridays (1)
Stock records not always transferred (1) due to time pressures (1)
Stock orders not always accurate (1) stock not available for future building of sheds (1)
Accessories out of stock (1) sheds delivered without accessories (1).</td><td>[4]</td></tr>
<tr><td>6</td><td>The new system can be created using off-the-shelf software or by writing bespoke software.

Explain the advantages and disadvantages to Hideaway Sheds of creating the system using off-the-shelf software.

<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 of the advantages and disadvantages of o-t-s software.

Examples will relate to HS.

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

Question	Answer	Mark

M	5 – 8	Candidates will show an understanding of the question. Advantages **and** disadvantages of o-t-s software are described with some explanation given. Some examples given relate to HS. 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, and there may only be advantages or disadvantages. Examples, if given, may not relate to HS. 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.

0 marks if no response or no response worthy of credit.

Responses may include:

Advantages
Available immediately
Large choice of software
Users may, if used software from the vendor previously, be familiar with format/screen layouts/commands
Support for new peripherals available through patches
Will have been tested previously by large groups of users.

Examples given may include:
HS do not have to allocate a large budget for software, o-t-s is cheaper to purchase
Less time/money spent on staff training.

Disadvantages
Licences may be expensive
May not fully meet the required purpose
Will have many unnecessary features not used taking up memory space
Large memory footprint.

Examples given may include:
o-t-s software may not be totally applicable to holding stock records
HS do not own the o-t-s software so may be unable to tailor it to fully meet their future business needs.

[12]

Question	Answer	Mark
7	**The owner of Hideaway Sheds has asked that the supplier and customer records are held on computer.** **(i) Identify the Act that needs to be considered when holding the supplier and customer records.** Data Protection Act (1).	**[1]**
	(ii) Explain one implication of the Act to Hideaway Sheds. *3 from, allow specific examples from HS*. Data must be held securely (1st) HS must ensure adequate security is in place (1) only people who have to access data are able to (1). Data held must not be excessive (1st) HS must ensure that all data collected is relevant (1) example of irrelevant data provided (1). HS must not pass data to other companies (1st) without permission of data subject (1) direct marketing (1) must not pass outside EU without equivalent regulations (1). HS must ensure that periodic checks are done on data (1st) to ensure data is accurate (1) and up to date (1). HS must inform information commissioner (1st) why it wants to hold data (1) HS can only collect/process data that meets these requirements (1).	**[3]**
	(iii) 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) queries can be run (1) and saved for future use (1) searches can be carried out (1).	**[3]**
8	**The owner has requested that the new system have full internet access with email communication.** **Identify the most suitable hardware device for this task, justifying your choice.** Modem/wireless router (1st) to enable access to internet (1) to convert signals from analogue to digital (1) to facilitate usage of email (1) internally /externally (1).	**[3]**
9	**Identify and describe the maintenance strategy that would be used to correct these errors.** Corrective/remedial (1st mark) an error has been undetected during testing (1) the system appears to be working as required (1) but does not process the data (1) as HS require (1) usually corrected by patches (1).	**[4]**

Section B

Question	Answer	Mark
10	**Investigations are carried out as part of the feasibility stage.** **Describe two benefits and one limitation of using interviews as an investigation method.** *Max 2 per benefit/limitation* *Benefits, 4 from:* A relationship can be developed (1) with the people who will be using the system (1) Questions can be amended (1) as the interview progresses/to clarify a point (1) Additional questions can be added (1) to gather more information (1). *Limitations, 2 from:* Can be time-consuming (1) and costly in terms of staff time (1) Poor interviewing techniques (1) can lead to mis-leading or insufficient information being gathered (1) If the organisation is large (1) may not be possible or feasible to interview everyone (1).	**[6]**
11	**Verification can be used to check the data that is being input into a system.**	
(a)	**Explain verification.** *2 marks* The method of checking that the data entered into the system (1) is the same as the source of the data (1).	**[2]**
(b)	**Describe one method of verification.** *2 from:* Data entered twice by user (1) the entries are checked to ensure they are identical (1) The data entered is displayed (1) and the user must check it (1).	**[2]**
12	**During the systems life cycle a data dictionary could be developed.**	
(a)	**Explain the function of a data dictionary.** *3 from:* A record of data about data (1) entries held about data elements (1) including data elements/structures/flows/stores/processes (1) enables future maintenance/development (1) to see structure of database being used (1).	**[3]**

Question	Answer	Mark
(b)	**Identify two components of a data dictionary.** *2 from, 1 mark each* Name Description Aliases Type Format Values Security Editing Comments Validation (accept examples)	**[2]**

13 **Evaluate the use of a formal method of modelling data flows within a system.**

Band	Mark Range	
H	4 – 5	Candidates will show a clear understanding of the question and include **detailed** explanations of the advantages **and** disadvantages of the use of a formal method of modelling data flows Candidates provide a conclusion clearly justifying the use of a formal 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.
M	2 – 3	Candidates will show an understanding of the question and include explanations of the advantages **and** disadvantages of the use of a formal method of modelling data flows. Explanations may be limited. Candidates provide a conclusion relating to the use of a formal method of modelling data flows 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.
L	0 – 1	Candidates will demonstrate a limited understanding of the question. Information may be a list of advantages **or** disadvantages, with little or no explanations. Information will be poorly expressed and there will be a limited, if any, use of technical terms. Errors of grammar, punctuation and spelling may be intrusive.

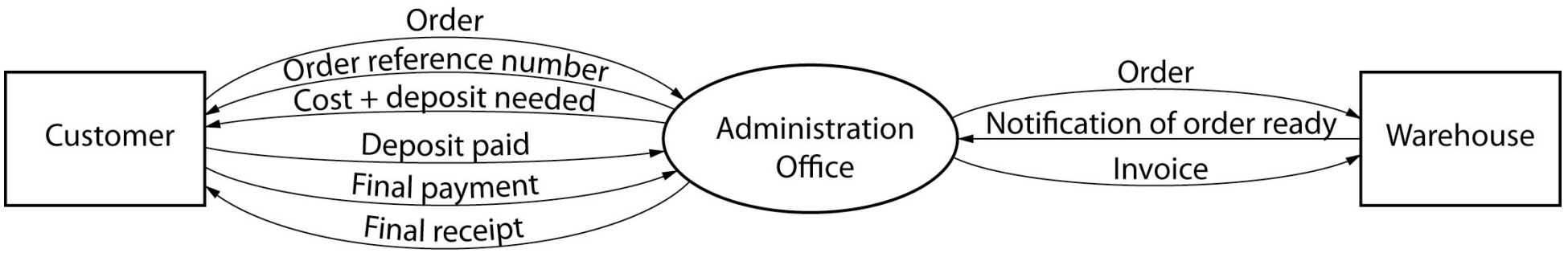
Responses may include:

Description
A diagrammatical way of representing the flow of data/information in a system
Generally accepted as DFD's

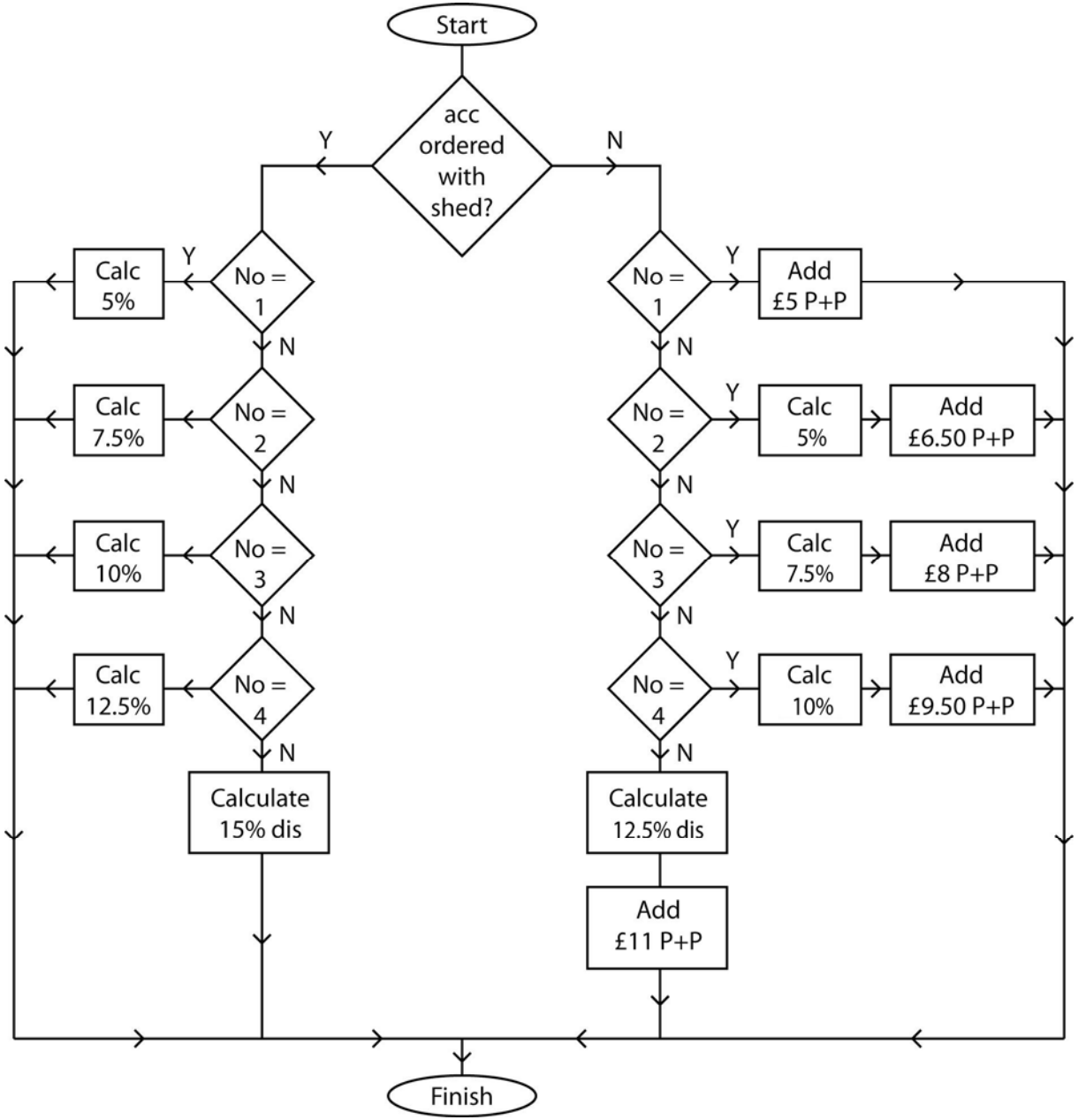
Advantages
Analyst is able to clearly break down the system under investigation **[5]**

	Diagrams can be easier for non-specialists to understand Documents/data stores and processes can be clearly linked Shows external entity interaction with system **Disadvantages** Many different ways of developing a DFD Lots of different symbols can be used Easy to become very large Can be difficult to see all processes/data stores and the interaction	

Appendix 1


Order
Order reference number
Cost + deposit needed
Deposit paid
Final payment
Final receipt
Customer
Administration Office
Order
Notification of order ready
Invoice
Warehouse

Appendix 2


Start
acc ordered with shed?
Y
N
No = 1
Calc 5%
No = 2
Calc 7.5%
No = 3
Calc 10%
No = 4
Calc 12.5%
Calculate 15% dis
No = 1
Add £5 P+P
No = 2
Calc 5%
Add £6.50 P+P
No = 3
Calc 7.5%
Add £8 P+P
No = 4
Calc 10%
Add £9.50 P+P
Calculate 12.5% dis
Add £11 P+P
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