OCR
Oxford Cambridge and RSA

GCE

Applied ICT

Unit **G054:** Software Development

Advanced GCE

Mark Scheme for June 2014

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

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Annotations

Annotation	Meaning
BP	Blank Page – this annotation **must** be used on all blank pages within an answer booklet (structured or unstructured) and on each page of an additional object where there is no candidate response.
^	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.

Subject-specific Marking Instructions

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

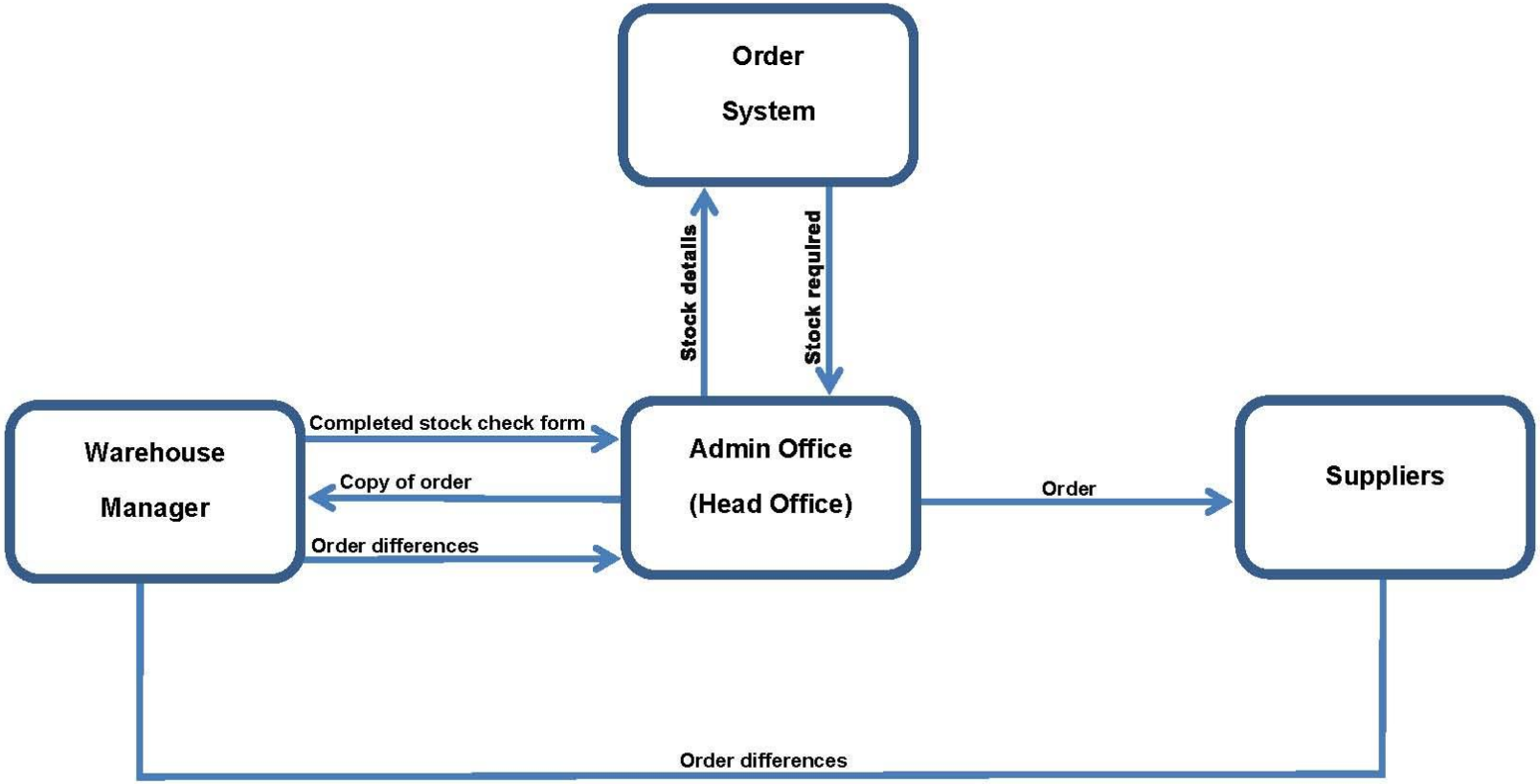
<table>
<tr><th colspan="3">Task</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>2</td><td></td><td></td><td>12 marks available for L0 DFD (see attached example)

1 mark available for each of:
Warehouse (manager) clearly identified - W
Supplier clearly identified - SU
Administration office/staff clearly identified – A
Order system clearly identified - O
Logical order of processes - L
Consistency - C

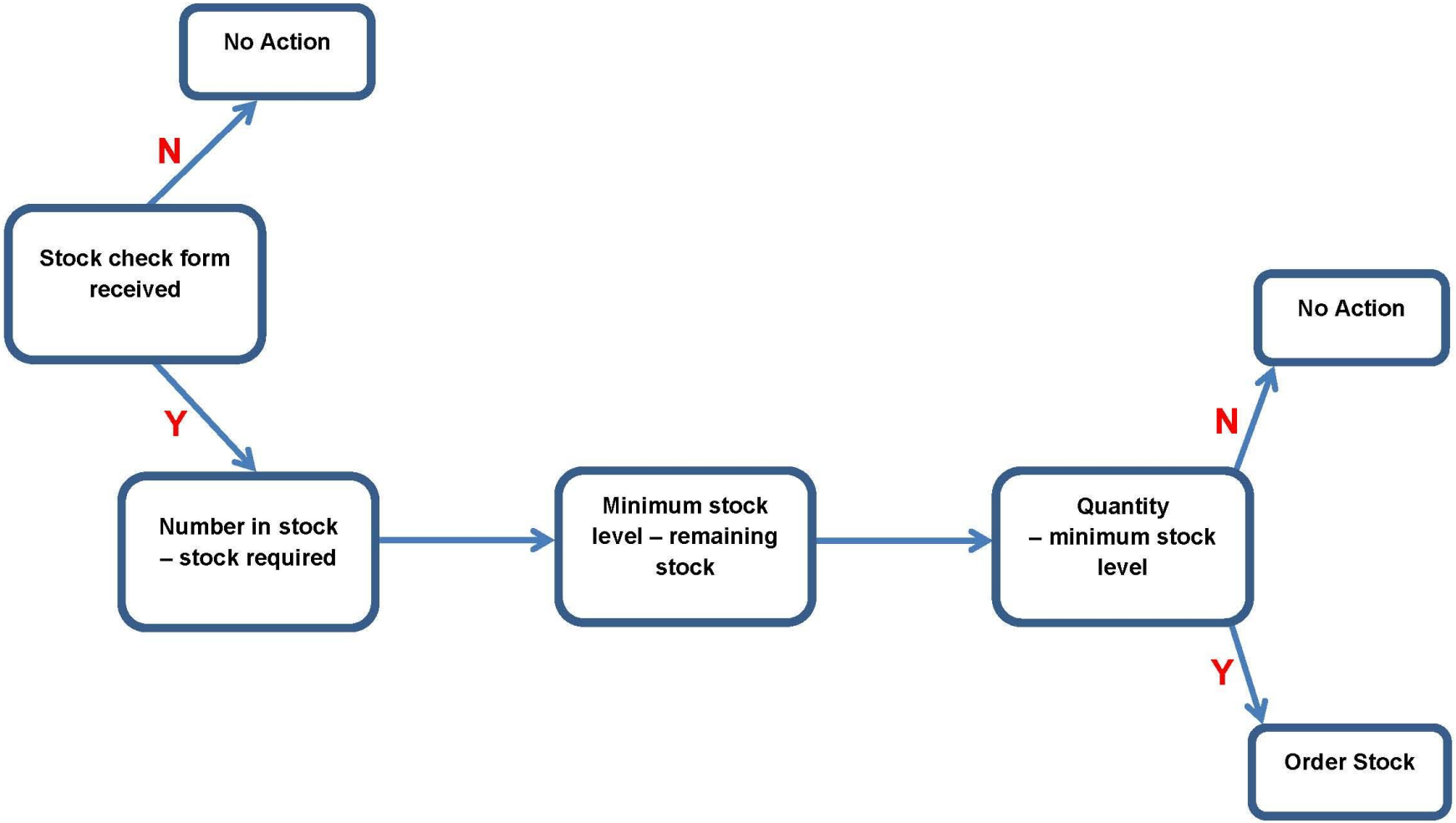
1 mark for each correct flow of information - F (Max 7)

<table><tr><td>Mark</td><td></td></tr><tr><td>1</td><td>Some comment on method(s) used to develop L0 DFD</td></tr><tr><td>2</td><td>A strength / weakness in method(s) used identified</td></tr><tr><td>3</td><td>A strength and weakness in method(s) used identified</td></tr></table></td><td>15</td><td>Max 12 for L0 DFD

Max 3 for evaluation (AO4)</td></tr>
</table>


Order System
Stock details
Stock required
Warehouse Manager
Completed stock check form
Copy of order
Order differences
Admin Office (Head Office)
Order
Suppliers
Order differences

Task			Answer	Marks	Guidance
3			1 mark for: Consistency All flows labelled Each decision box having 2 exit flows (max 2) No action from each decision box (max 2) Mathematical logic correct Each process (max 5)	10	See attached example


No Action
N
Stock check form received
Y
Number in stock – stock required
Minimum stock level – remaining stock
Quantity – minimum stock level
N
No Action
Y
Order Stock

Task			Answer	Marks	Guidance
4			1 mark available for each of: • Customer details • Machines hired + Price per hire + Dates hired • Services supplied + Quantity • VAT + Total for month • Date of invoice + month + 1 from: • Use of colour/font/white space • Logical order of information • Identification of TU • All data/information shown is appropriate with no omissions/extra data required	5	1 mark available for each – Max 5 Do not accept pre-populated/examples of completed invoice First one required plus any three other plus one from last four

SECTION A

NOTE: TU = Tools Unlimited

Question			Answer	Marks	Guidance
1			Reduce errors (1st) Validation of inputs / all calculations automated (1) To upgrade applications software (1st) using the same vendors (1)	4	2 from list given Max 2 per description
2			**Definition** Functional requirements are what the user (1) wants the system to do (1) **Examples** To calculate stock levels (1) To keep a database of customers/ suppliers(1) Customers/suppliers to have unique numbers (1) To carry out searches based on unique numbers (1) To hold supplier details including stock/machines/consumables supplied (1) To record payments / keep accounts (1) To produce reports (1) Bookings be able to be accessed by admin staff taking hire bookings (1)	6	Max 4 for examples from TU
3	a		Vendor (1st) of applications software / operating system (1) to be kept the same (1) newer versions (1)	3	
	b	i	Hardware	1	Correct answer only
	b	ii	eg Provide a handheld tablet (1st) for the warehouse manager (1) to submit the stock check form electronically (1)	3	To be awarded marks for this part of the question b(i) must be correct

Question			Answer	Marks	Guidance
4			Stock orders / the amount of stock required (1) cannot be read due to illegible handwriting (1) This has led to the incorrect amount of consumables being ordered (1) so customers requirements cannot be met (1)	4	
5			To produce reports (1st) the total number of hires for each hire period (mid-week or weekend) on a monthly basis / the amount of revenue that each machine brings to the business / breakdown of the number of hires for each machine, on a monthly basis / list of account customers who have outstanding invoices on a weekly basis. (1) A daily stock check form (1st) be sent electronically / including pre-populated fields (1)	4	Max 2 marks per requirement
6			**Advantages eg:** System is developed to meet needs of TU (1) no unwanted/un-needed features (1) Has specified features (1) system functions exactly as needed (1) TU owns the software (1) so could sell to other tool hire businesses to recoup cost (1) **Disadvantage eg:** If the analysis is incorrect / anything is missed out (1) the system is not fit for purpose (1) If the developers go out of business (1) can be difficult to get support (1)	4	Max 2 per explanation 1 advantage Max 2 1 disadvantage Max 2

Question			Answer	Marks	Levels of Response
7			Answers may include: **Advantages** A rapport can be developed with the staff / owner of TU Questions can be altered based on responses Additional questions can be asked to clarify points / gain extra information **Disadvantages** Can be time-consuming and expensive Can get misleading or insufficient information if questions are not correct / appropriate It may not be possible to interview everyone **Examples eg** Different sites so would be time consuming Small business so productivity / tasks would take longer Different users have different needs from system Not all staff at TU are computer literate	12	

Band	Mark Range	
H	9-12	Candidates will show a clear understanding of the question and include a detailed discussion, including the advantages **and** disadvantages of using interviews as an investigation method. Examples will relate to TU 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. A discussion including the advantage(s) **and** disadvantage(s) of using interviews as an investigation method will be given. Discussion may be one sided. Some examples given relate to TU 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 TU 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.

Question			Answer	Marks	Guidance
8			**Advantages eg:** Disruption kept to a minimum (1) as system will be implemented over a weekend / when TU is closed (1) System is implemented very quickly (1) so issues with old system can be reduced (1) **Disadvantage eg:** All current data could be lost (1) if any bugs/errors not found during testing (1) Planning for this implementation method (1) must be thorough (1) Staff may not be familiar with the system (1) if they have not been fully trained (1)	4	Max 2 per description 1 advantage Max 2 1 disadvantage Max 2
9		i	Data Protection Act (1)	1	Correct answer only
		ii	Customers details must be processed fairly and lawfully (1) and they must give their consent to TU holding their details (1) To not ask for too much data (1) and it must be relevant to TU.(1) TU must check with customers that their data is accurate (1) must change it if there are any inaccuracies.(1) Top not hold data for longer than is necessary (1) if a customer stops having an account / hiring from TU their details must be removed (1) TU must tell customers what they are going to do with their data (1) example given (1) TU must make sure their computer systems are secure (1)	4	To be awarded marks for this part of the question (i) must be correct 2 from list, Max 2 per action

Section B

<table>
<tr><th colspan="3">Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>10</td><td></td><td>i</td><td>3 from:
If maintenance needed at a later date / post implementation (1) the developer would be able to see how the software was constructed (1) as it is very unlikely that the developer doing the maintenance (1) would be the same as that who developed the system initially (1)</td><td>3</td><td></td></tr>
<tr><td>10</td><td></td><td>ii</td><td>To ensure most up-to-date version is used (1) to be able to track changes (1) made through different versions (1)</td><td>3</td><td></td></tr>
<tr><td>11</td><td></td><td>i</td><td><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>Data Store</td><td> </td></tr><tr><td>Flow of data/information</td><td> </td></tr></table></td><td>4</td><td>Symbol must be labelled correctly to be awarded label mark.</td></tr>
</table>

Question			Answer	Marks	Guidance
11		ii	Storyboards Rich picture diagram Systems flowcharts Entity-relationship diagrams Data dictionary Decision tree/tables Structured English	2	2 from list 1 mark each

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Levels of Response</th></tr>
<tr><td>12</td><td>Answers may include:

Description
A diagrammatical way of defining of the structure of data and the relationships between entities and relationships
Generally accepted as ERD’s and data dictionaries

Advantages eg
Can be easily converted to a database if done correctly as primary and foreign keys are used to create links
Clients can understand diagrams
Moves on from creating DFD – entities and data stores can relate between DFD and ERD
Does allow changes to be made by client and queries to be hardcoded

Disadvantages eg
May be difficult for clients to understand
Large systems can be difficult to represent
If errors are made defining entities / relationships then the system will not work as intended
System can be too complicated / require too many entities
If developer does not keep referring back to user requirements then system may not meet the needs of the client</td><td>8</td><td>
<table>
<tr><th>Band</th><th>Mark Range</th><th></th></tr>
<tr><td>H</td><td>6-8</td><td>Candidates will show a clear understanding of the question and include detailed evaluation including the advantages and disadvantages of the use of logical data modelling.
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 an evaluation including the advantage(s) and disadvantage(s) of the use of logical data modelling.
Evaluation may be limited or one-sided.
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, with little explanation.
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></tr>
</table>

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