

**GCE AS**

**Applied Information and  
Communication Technology**

**January 2010**

**Mark Scheme**

Issued: April 2010



MARK SCHEMES (2010)

Foreword

*Introduction*

Mark Schemes are published to assist teachers and students in their preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

*The Purpose of Mark Schemes*

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of 16- and 18-year-old students in schools and colleges. The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and the mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes therefore are regarded as a part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all the markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

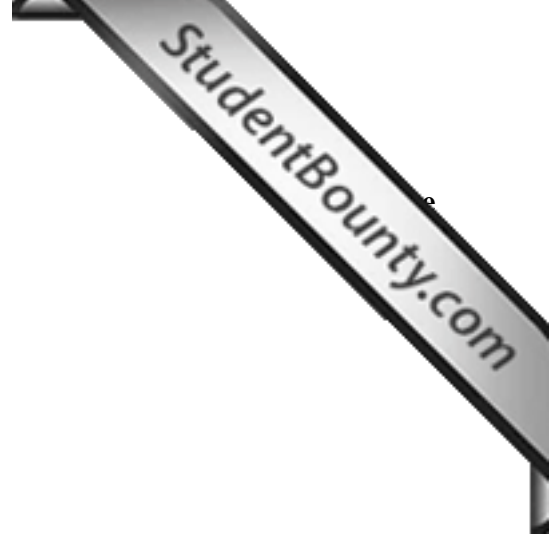
It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example, where there is no absolute correct response – all teachers will be familiar with making such judgements.

The Council hopes that the mark schemes will be viewed and used in a constructive way as a further support to the teaching and learning processes.



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A2 7: Unit 7







*Rewarding Learning*

**ADVANCED**  
**General Certificate of Education**  
**January 2010**

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**Applied Information and  
Communication Technology**

Assessment Unit A2 7

*assessing*

Unit 7: Investigating Systems

**[A6J11]**

**THURSDAY 14 JANUARY, AFTERNOON**

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**MARK  
SCHEME**

- 1 (a) To deal with an increasing customer base  
 To handle paperwork  
 To make the business more professional  
 To make the business more competitive  
 To improve communication  
 To improve efficiency  
 To improve the image of the business  
 To store large amounts of data  
 Internet presence  
 Current system out of date

[1] mark for each of any three from the above list or other suitable alternative [3]

- (b) Explanation related to TIP TOP TOES – specific examples needed from case study.

Excessive paperwork – large number of documents to be updated – all listed in case study.

Sometimes make mistakes – e.g. forget to book extra time for a new client; try to charge a cancellation fee when it has already been paid

Increasingly popular – therefore number of customers increasing

Data all stored in one place – therefore increased security/ access to data.

More professional image – rather than having to handwrite receipts – they will be automatically generated.

Will enable company to promote itself via the internet

[1] mark for each example [3]

6

- 2 (a) (i) Plan 2 [1]

(ii) Problems with plan 1:

**Mark Band ([1]-[2])**

Candidate provides a basic answer showing limited understanding of the problems with plan 1.

- Limited knowledge and understanding displayed.
- Limited reference to specific techniques.
- Limited discussion of the plan and its application to the investigation at TIP TOP TOES.
- No reference to timing of activities.
- Basic written communication.



**Mark Band ([3]-[4])**

Candidate provides a competent answer indicating understanding of the techniques and their application to TIP TOP TOES.

- Some knowledge and understanding displayed.
- Reasonable reference to advantages and disadvantages of each technique.
- Reasonable discussion of correct order of activities and their application to the investigation at TIP TOP TOES.
- Appropriate level of written communication

**Mark Band ([5]-[6])**

Candidate provides a very competent answer showing thorough understanding of problems with plan 1.

- Very good knowledge and understanding displayed of fact finding techniques.
- Relevant reference to specific advantages and disadvantages.
- Clear discussion of the various techniques and their application to the investigation at TIP TOP TOES.
- Detailed discussion concerning ordering of activities within plan.
- Very effective written communication

Would take a lot of time to interview all customers.

Not a good idea to start with interviews – need to do some general background research first.

Why decide to observe the therapist – her work will be quite specialised – it would be better to observe someone in a more general role in the organisation.

Observation should also be done later in the process.

Janet Legg is the owner of the business and the person who has decided to introduce a computer system. For these reasons she should be the first person that the analysts talk to.

Interviewing all staff would take a long time – some of them carry out the same role – i.e. two secretaries and four chiropodists – so is it really necessary to interview all of them?

Documentation should be reviewed earlier in the process as it will then give the analysts a chance to see where and how the documentation is used within the organisation. Documentation also provides a useful starting point for the analyst to acquire background information. [6]

(b)

Question	Weekly Schedule	Supplier Receipts	Apponitment books	Client history file	Stock order book	
How many staff are on duty at any time?	✓					[1]
How often are stock orders placed?					✓	[1]
How many suppliers do TIP TOP TOES have?		✓				[1]
What is the most popular day/time for appointments?			✓			[1]
What details are recorded about each client?				✓		[1]

[5]

**AVAILABLE MARKS**

12

3 (a)

People Involved							
Activities	Janet Legg	Analysts	Users	Programmer	Customers	Suppliers	
Providing data through fact finding activities	(✓)		✓		✓	(✓)	[1]
Creating data models	✓ (can be omitted)	✓	✓				[1]
Deciding which options within feasibility study to implement	✓						[1]
Putting the system specification into practice				✓			[1]
Testing the new system	(✓)	✓	✓	✓			[1]

(b) chiropodists  
therapist  
secretary

[1] mark for each of any two from the above list

[5]

[2]

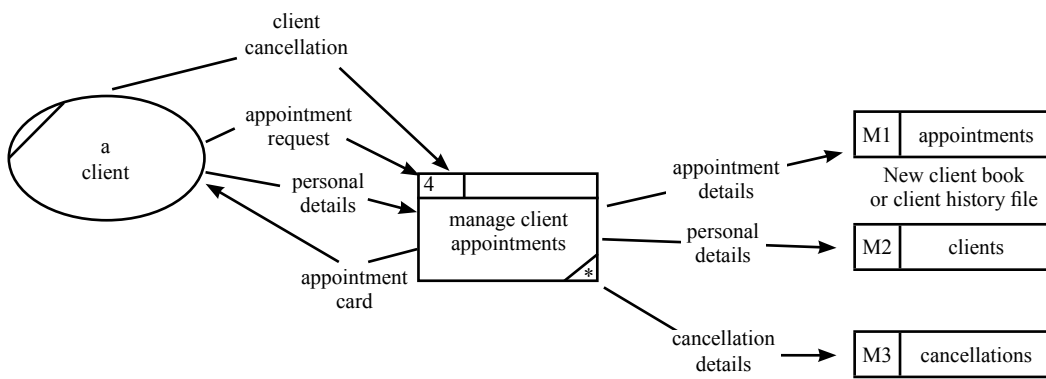
AVAILABLE MARKS
7

- 4 (a) (i) Applicant A [1]
- (ii) Creativity/communication skills are very important soft skills for an analyst.  
 Previous business experience can be applied to new situations.  
 Analyst must be able to work on own or as part of a team.  
 Problem solving abilities. [2]
- (iii) Technician or programmer or any other suitable role e.g. developer [1] 4
- 5 (a) (i) Provide a useful tool for communicating with system owner what the analysts have found out about the current and proposed system  
 Useful for summarising details relating to incoming data, outgoing data, external entities, processes and files.  
 Provide a diagrammatic representation of existing and proposed systems.  
 Standard notation used – therefore understood by analysts and programmers.  
 [1] mark for each of any two from the above list or other suitable alternative [2]
- (ii) **Mark Band ([1]-[2])**  
 Candidate provides a basic answer showing limited understanding of the people involved in the Data Flow Diagramming process and their roles within TIP TOP TOES.  
 – Limited knowledge and understanding displayed  
 – Limited discussion of the role of the User in the development of the diagrams.  
 – Basic written communication.
- Mark Band ([3]-[4])**  
 Candidate provides a competent answer indicating understanding of the process and its application within TIP TOP TOES.  
 – Some knowledge and understanding displayed  
 – Reasonable discussion of the role of the User in the development of the diagrams.  
 – Appropriate level of written communication
- Mark Band ([5]-[6])**  
 Candidate provides a very competent answer indicating good understanding of the role of the user within the data flow diagramming process at TIP TOP TOES.  
 – Very good knowledge and understanding displayed  
 – Clear discussion of the role of the User in the development of the diagrams.  
 – Recommendations based on extensive reference to user roles within TIP TOP TOES  
 – Very effective written communication

Janet Legg      Business owner  
 Has ultimate responsibility for operations  
 Works as a chiropodist herself therefore understands daily procedure  
 Will have opinions as to how things should be done

Secretary      Involved with the majority of the administrative procedures  
 Will be able to highlight problems with current procedures  
 Must be made to feel involved  
 If involved with the design, will be able to understand how the new system operates more quickly

- (b) (i) appointment details [1]
- (ii) clients [1]
- (iii) personal details/client details [1]
- (iv) appointment card/cancellation [1]
- (v) client [1]
- (vi) a [1]
- (vii) cancellation [1]



6 (a) (i) Statement B [1]

(ii) Gives users a tangible demonstration of what the system does.

Dynamic

Flexible

Allows user input to influence outcomes

Allows quick development

Increases likelihood of success

Benefits the user and the developer

Can be used for training purposes

[1] mark for any reason from the above list or other suitable alternative

[1]

(iii) Requires software skills

Time consuming

Needs more resources

Need the right users for testing

Can raise user expectations

May be a difficult process to manage

Can result in an incorrect system being delivered

Difficult to backtrack

Costly

[1] mark for any reason from the above list or other suitable alternative

[1]

(b) Candidates should make reference to the characteristics of each methodology and the types of application to which each is most suited. Candidates should evaluate each methodology using the characteristics they have identified. Candidates should decide which methodology is best suited to the development at TIP TOP TOES and justify their choice.

Candidates should be able to argue that the more flexible approach evident in DSDM is better suited to this type of development. They should support this by referring to specific attributes of the methodology. Candidates should also note the characteristics of SSADM which would be inappropriate in this case.

**Mark Band ([1]-[2])**

Candidate provides a basic answer showing limited understanding of each methodology.

- Limited knowledge and understanding displayed
- Limited reference to specific characteristics
- Limited discussion and evaluation of the two methods and their application at TIP TOP TOES
- Basic written communication

**Mark Band ([3]-[4])**

Candidate provides a competent answer indicating understanding of the methodologies.

- Some knowledge and understanding displayed
- Reasonable discussion and evaluation of the two methods and their application to TIP TOP TOES.
- Reasonable reference to specific characteristics.
- Appropriate level of written communication

**Mark Band ([5]-[6])**

Candidate provides a very competent answer indicating good understanding of the two methodologies.

- Very good knowledge and understanding displayed
- Clear discussion and evaluation of the two methods and their application to TIP TOP TOES.
- Very effective written communication

	<b>SSADM</b>		<b>DSDM</b>
1	Has a top down approach.	1	Highly suited to business applications.
2	Generates specific documentation at each stage.	2	High level of User involvement.
3	Is controlled by the systems analyst.	3	Systems can be broken down into small steps so that different tasks can be achieved at the same time.
4	Covers most of the life cycle from feasibility study to system design.	4	Used in situations where a working system is required in a short space of time.

7 (a)

	TRUE/FALSE	
Each supplier can supply many items of stock	TRUE	[1]
Each item of stock can be ordered many times	TRUE	[1]
A supplier can only receive orders for one product	FALSE	[1]
TIP TOP TOES only has one supplier	FALSE	[1]

[4]

(b)

Field Name	Data Type/ Size	Comments	Sample Data
Supplier Code	autonumber	Primary key – automatically allocate a number	100
Supplier name	Must be greater than 19 Text, 30	NONE	Wholesale Cosmetics
Supplier Address	Text, 50	NONE	56, Lurgan High Road
Post code	Text, 8	Input mask >LL00 0LL	BT90 8TR
Supplier Telephone	Greater than 11 Text, 12	NONE	028 91348991

[8]

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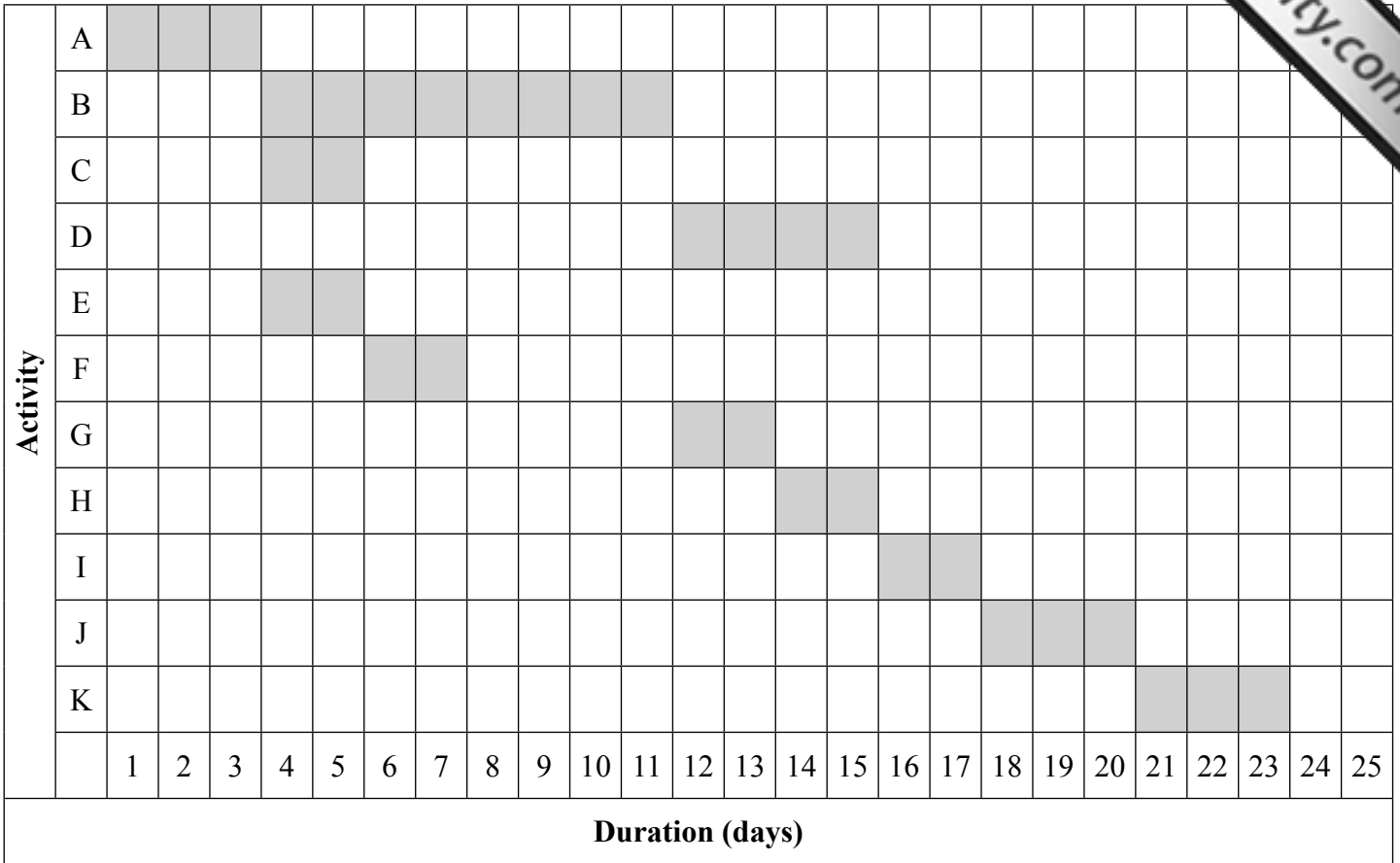


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<b>Problem</b>	<b>Example 1</b>	<b>Example 2</b>
Data entry	Forename and surname should be separate fields	Address details should be divided out – street, town, post code
Inconsistent layout	Buttons in different positions	Logo in different positions
Use of Colour	Different coloured backgrounds	Required fields have different colours on each screen.

[4]

9 (a)



(a) [1] mark for each activity correctly placed

[11]

(b) 23 days or 23

[1]

AVAILABLE MARKS

(c)

EVENT	IMPACT
Hardware arriving two days late	No effect
Analyst who was writing documentation off sick for three days	Activities I, J and K will all be pushed on by 3 days – therefore overall project time will increase by 3 days. 3 days late.
Janet Legg taking two days holiday	No effect
Hardware arriving six days late	This will mean that activity F will be pushed forward by 6 days but there is sufficient slack on this activity and so this <b>will not impact</b> on overall project duration.

[1]

[1]

[1]

[1]

[4]

16

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ACTIVITY	TYPE OF TEST	
Check that total calculation appears correctly on customer receipt	Program testing	[1]
Check that backup occurs automatically when database is closed each evening	System testing	[1]
Check that chiroprapist is able to create a new client file	Acceptance testing	[1]
Check that stock report flags those products where stock level is less than re-order level	Program testing	[1]
Check that rescheduled appointments appear on the correct staff member's appointment list	System/ program testing	[1]
Check that a new user is added correctly to the system	System testing	[1]

[6]

6

11 (a)

QUESTION	REASON FOR QUESTION	
Could you close the business for a few days?	This would mean that they don't need the system working for a few days and so will have time to iron out any bugs – could allow for either direct or parallel.	[1]
Would you be prepared to employ extra staff during the changeover period?	Would allow for a parallel changeover as there is extra work involved with working two systems.	[1]
Would you be prepared to introduce the stock control module of the new system before the appointment module?	This would allow for a phased implementation as each part of the new system could be introduced separately.	[1]

**(b) Mark Band ([1]-[2])**

Candidate provides a basic answer showing limited understanding of the possible changeover strategies and how they could be used by TIP TOP TOES.

- Limited knowledge and understanding displayed.
- Limited reference to characteristics of a range of changeover strategies.
- Limited reference to advantages and disadvantages of each strategy.
- Limited justification for choice of strategy.
- Basic written communication.

**Mark Band ([3]-[4])**

Candidate provides a competent answer indicating understanding of the techniques and their application to TIP TOP TOES.

- Some knowledge and understanding displayed.
- Reasonable reference to specific characteristics.
- Reasonable discussion and evaluation of a range of strategies and their application to the implementation at TIP TOP TOES .
- Reasonable discussion and justification of the choice of strategy.
- Appropriate level of written communication

**Mark Band ([5]-[6])**

Candidate provides a very competent answer indicating good understanding of the range of strategies and their application to TIP TOP TOES.

- Very good knowledge and understanding displayed.
- Relevant reference to specific characteristics of each strategy.
- Clear discussion and evaluation of the strategies and their application to the development at TIP TOP TOES.
- Appropriate discussion and justification of the choice of strategy with alternative options being suggested depending on answers which may have been received.
- Very effective written communication

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**Total**

**100**





