



ADVANCED
General Certificate of Education
2013

**Applied Information and
Communication Technology**

Assessment Unit A2 7

assessing

Unit 7: Investigating Systems

[A6J11]

THURSDAY 23 MAY, MORNING

**MARK
SCHEME**

General Marking Instructions

Introduction

Mark schemes are published to assist teachers and students in their preparation for examinations. With 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 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 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.

1

REASON FOR DEVELOPING A NEW SYSTEM	
Fiona has to look through the stock every time there is an enquiry for a fancy dress costume.	✓
Doreen gets annoyed when Fiona changes the entries in the notebooks.	
Taking measurements at a customer's house is time-consuming.	
A lot of time is being spent with customers who have genuine grievances.	✓
The wedding and costume hire side of the business would benefit from a web presence.	✓
Information is duplicated in the notebooks.	✓
Employees do not like filling in timesheets.	
Customers often have to wait longer than initially estimated when a required item, like a zip, is not in stock.	✓

[1] for each correct tick × 5
 (deduct [1] for any extra ticks; [0] if all ticked)

[5]

5

FACT FINDING TECHNIQUE	CHARACTERISTIC	SUITABILITY
Interviewing	<ul style="list-style-type: none"> • One to one interaction with staff • Can ask probe questions • Good for open ended questions • Some staff may be intimidated • Staff may give an individual opinion rather than a company view • Could be time consuming 	<ul style="list-style-type: none"> • This technique would be very suited to this investigation as there is a small number of staff and it would be easy to implement
Questionnaires	<ul style="list-style-type: none"> • Good when there is a large geographically dispersed population • Good for gathering factual information yes/no type answers • Suitable for statistical analysis • Response rates may be low • Respondents may find questions ambiguous and could misinterpret with no chance for clarification 	<ul style="list-style-type: none"> • This technique would not be suitable in this situation as there are a small number of employees • It could possibly be used to assess customer satisfaction
Observation	<ul style="list-style-type: none"> • Good for seeing procedures at first hand • Can identify issues that have not been uncovered by other techniques • Employees may change their working behaviour and give a false impression 	<ul style="list-style-type: none"> • This technique could be used to supplement other techniques in this situation • It is unlikely that it would be adequate if used on its own
Document Inspection	<ul style="list-style-type: none"> • Could yield valuable information about staff, procedures or financial information • May be out of date 	<ul style="list-style-type: none"> • This technique is not very well suited to this situation as there is little documentation. There may however be some benefit to examining the notebooks

[1] for each correct reason × 8

[8]

(b) The main persons identified would be Fiona, Doreen and Frances.

Mark Band ([1]–[2])

Candidate provides a basic answer showing limited knowledge and understanding of interviewing as a fact finding technique.

- At least one person identified for interview is correct.
- Provides limited reasons for choosing the interview technique related to the people identified in the case study.
- Provides poor descriptions of the information to be obtained from the people identified in the case study.
- Basic level of written communication.

Mark Band ([3]–[4])

Candidate provides a competent answer showing knowledge and understanding of interviewing as a fact finding technique.

- All persons identified for interview are correct; at least two people identified.
- Provides reasons for choosing the interview technique related to the people identified in the case study.
- Provides reasonable descriptions of the information to be obtained from the people identified in the case study.
- Competent level of written communication.

Mark Band ([5]–[6])

Candidate provides a very competent answer showing good knowledge and understanding of interviewing as a fact finding technique.

- All persons identified for interview are correct; at least two people identified.
- Provides good reasons for choosing the interview technique related to the people identified in the case study.
- Provides detailed descriptions of the information to be obtained from the people identified in the case study.
- Excellent level of written communication.

[6]

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3

STATEMENT	TRUE/FALSE
Users are always excellent at describing their requirements for a new system.	false
The test plan should be created early in the systems development lifecycle.	true
Users should not be involved until the end of a lifecycle as they tend to change their minds all the time.	false
User guides should be written by programmers as they know a lot of technical terms.	false
Maintenance tends to be the shortest phase of the systems development lifecycle.	false

[1] for each correct response × 5

[5]

5

4 End users: Fiona, Frances, Doreen, Staff.

How a new computerised system might help.

Mark Band ([1]–[2])

Candidate provides a basic answer showing limited knowledge and understanding of users and their needs with regard to the new system.

- Correctly identifies at least 1 user.
- Provides poor explanations of the needs of the user.
- Provides few (if any) examples of how the new system could benefit the user.
- Basic level of written communication.

Mark Band ([3]–[4])

Candidate provides a competent answer showing knowledge and understanding of users and their needs with regard to the new system.

- Correctly identifies at least 2 users.
- Provides reasonable explanations of the needs of the users, relevant to the case study.
- Provides some realistic examples of how the new system could benefit the users.
- Competent level of written communication.

Mark Band ([5]–[6])

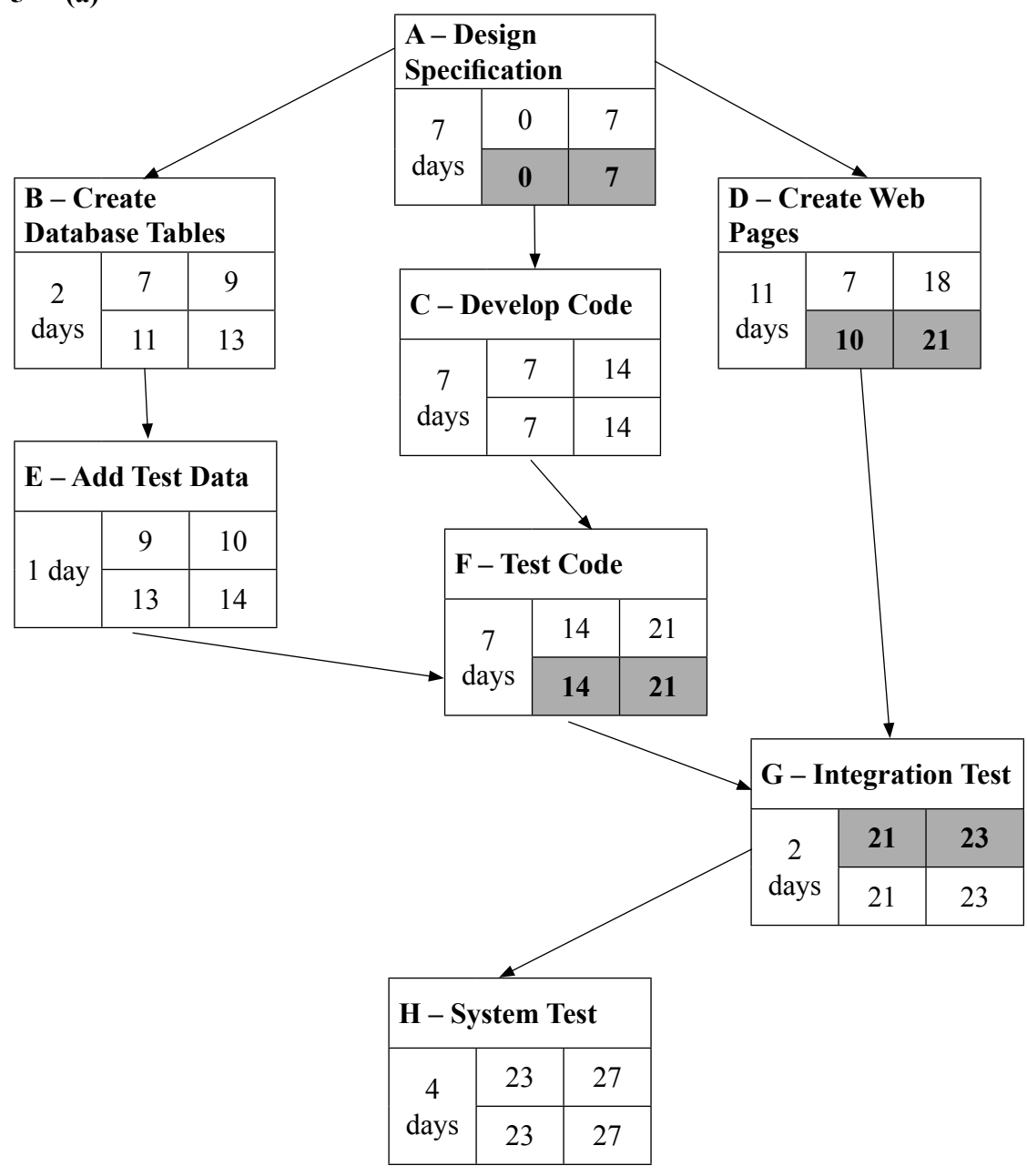
Candidate provides a very competent answer showing good knowledge and understanding of users and their needs with regard to the new system.

- Correctly identifies at least 3 users.
- Provides good explanations of the needs of the users, relevant to the case study.
- Provides several realistic examples of how the new system could benefit the users.
- Excellent level of written communication.

[6]

6

5 (a)



Each correct time = $[1] \times 8$ [8]

(b) 27 days. [1]

(c) B and E.

Each correct answer = $[1] \times 2$ [2]

(d) There are 4 days slack in task B. She will be off sick for 5 days. Therefore the project will overrun by 1 day. [2]
 (If mention only delay occurs [1], [2] if specify how long this delay is)

13

6 Prototyping (Evolutionary) for e-commerce system will involve the following reasons:

Mark Band ([1]–[2])

Candidate provides a basic answer showing limited knowledge and understanding of evolutionary prototyping.

- Correctly identifies few (if any) reasons why Fred would use prototyping for the new system.
- Correctly identifies few (if any) problems associated with using prototyping.
- Provides poor descriptions of reasons and problems identified.
- Basic level of written communication.

Mark Band ([3]–[4])

Candidate provides a competent answer showing knowledge and understanding of evolutionary prototyping.

- Correctly identifies some reasons why Fred would use prototyping for the new system.
- Correctly identifies some problems associated with using prototyping.
- Provides reasonable descriptions of the reasons and problems identified.
- Competent level of written communication.

Mark Band ([5]–[6])

Candidate provides a very competent answer showing good knowledge and understanding of evolutionary prototyping.

- Correctly identifies several reasons why Fred would use prototyping for the new system.
- Correctly identifies several problems associated with using prototyping.
- Provides good descriptions of the reasons and problems identified and relevant examples.
- Excellent level of written communication.

[6]

6

- 7 (a) (i) Customers/Clients
 (ii) **(Itemised) Bill***
 (iii) Payment
 (iv) **(First) Reminder***
 (v) **Final Reminder***
 (vi) Invoice Details
 (vii) Reminder Details
 (viii) Invoices [8]
 *(ii), (iv) and (v) are interchangeable

(b) The manual data stores (designated Mx) will show the system as it currently exists in the analysis phase of the SDLC.

A manual data store will be replaced by a data store (Dx) in the newly designed DFD (design phase) and will be shown as e.g.

D10	invoices
-----	----------

Symbol [1] + labels [1] = 2 (Number 10 may be different in answer) [2]

- (c) handle enquiries
 manage hire orders
 handle deliveries

Any 2 processes = [1] × 2 [2]
 or any other valid alternative that is a Level 1 process

12

8 (a)	STATEMENT	TRUE/FALSE
	A timesheet can be completed by more than one member of staff	false
	An order may have only one job associated with it.	true
	Each staff member can complete many jobs.	true
	A member of staff completes a weekly timesheet listing one or more jobs they completed that week.	true

Each correct true/false statement = $[1] \times 4$ [4]

(b)

DATA ITEM	STAFF	TIMESHEET	JOB	ORDER
Staff Number	✓	✓		
Job No			✓	
Hours Spent			✓	
Order Number			✓	✓
Timesheet No		✓	✓	

Each correct row = $[1] \times 5$ [5]

(c) A **foreign key** is a field that exists as a key field in one data table while existing as a non key field in another table. This is used to enable two tables to be linked. Examples include:

- Staff Number key in STAFF table
 non-key in TIMESHEET table
- Order Number key in ORDER table
 non-key in JOB table
- Timesheet No key in TIMESHEET table
 non-key in JOB table

Description plus example of foreign key = $[1] + [1]$ [2]

(d) Description or Date or Customer Number
Any **two** fields [2]

(e) $[1]$ for calculation used, $[1]$ for column identified (hours spent) [2]

15

9 (a)

TEST PLAN ITEMS	
Timing of the tests	✓
Personnel who will perform the tests	✓
Testing tools	✓
Test results	
Algorithms	
System evaluation	
Types of tests to be used	✓
Dataflow diagrams	

Each correct tick = [1] × 4 [4]
 (deduct [1] for any extra ticks)

(b) (i)

TEST	PROGRAM	SYSTEM	ACCEPTANCE
User checks how easy it is to add a dress to the shopping basket.			✓
Check that only dresses in the database which are available for hire are displayed on the web page.		✓	
Check that the calculation for the number of items in the shopping basket is correct.	✓		
Web programmer checks that the web page matches the storyboard.	✓		

Each correct row = [1] × 4 [4]

- (ii) Fred the Analyst [1]
- (iii) Fred the Analyst or the Programmer (both responses acceptable) [1]
- (iv) The other items that should be tested are:
 Procedures
 Hardware
 Documentation or any other suitable answer
 Any **two** items = [1] × 2 [2]
- (v) The storyboard is a visual aid (or any other suitable answer) [1]

13

10 Risks of direct changeover and alternative strategies (phased, parallel or pilot).

Mark Band ([1]–[2])

Candidate provides a basic answer showing limited knowledge and understanding of changeover strategies.

- Correctly identifies few (if any) risks of direct changeover relevant to the business.
- May not identify any alternative changeover strategy.
- Provides poor descriptions of the risks or changeover strategies identified.
- Basic level of written communication.

Mark Band ([3]–[4])

Candidate provides a competent answer showing knowledge and understanding of changeover strategies.

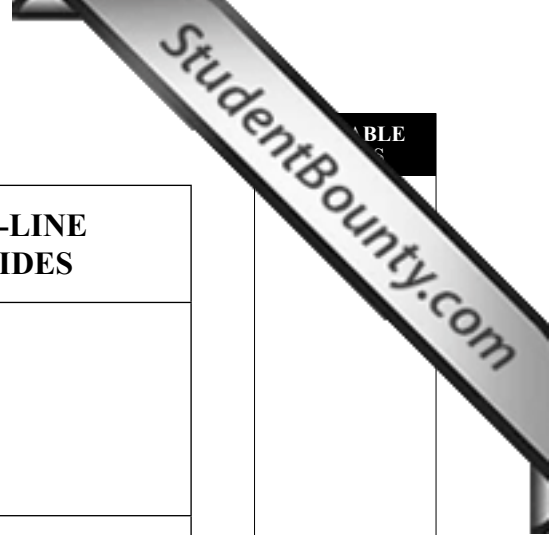
- Correctly identifies some risks of direct changeover relevant to the business.
- Identifies at least one alternative changeover strategy.
- Provides reasonable descriptions of the risks or changeover strategies identified.
- Competent level of written communication.

Mark Band ([5]–[6])

Candidate provides a very competent answer showing good knowledge and understanding of changeover strategies.

- Correctly identifies several risks of direct changeover relevant to the business.
- Identifies at least two alternative changeover strategies.
- Provides good descriptions of the risks or changeover strategies identified.
- Excellent level of written communication. [6]

6



PROBLEM	ON-SITE VISITS	REMOTE PC REPAIR	ON-LINE GUIDES
The hard drive in Doreen's computer has failed.	✓		
The software has been infected by a virus.		✓	
Fiona wants to know how to create a backup.			✓
The users want to know how to search the database for wedding dresses.			✓
Frances is on holiday and Fiona wants to create payslips for the employees.			✓

Each correct row = [1] × 5

[5]

5

Total

100