
INFORMATION TECHNOLOGY**9626/04**

Paper 4 Advanced Practical

May/June 2019

MARK SCHEME

Maximum Mark: 110

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

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This document consists of **15** printed pages.

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

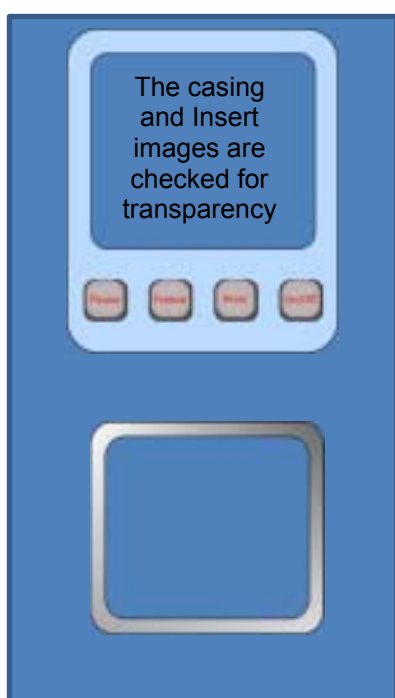
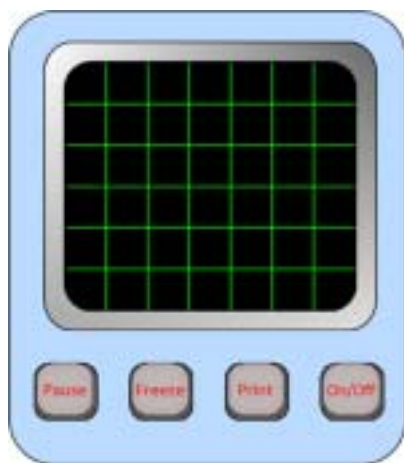
Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

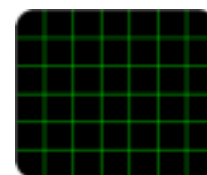
GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

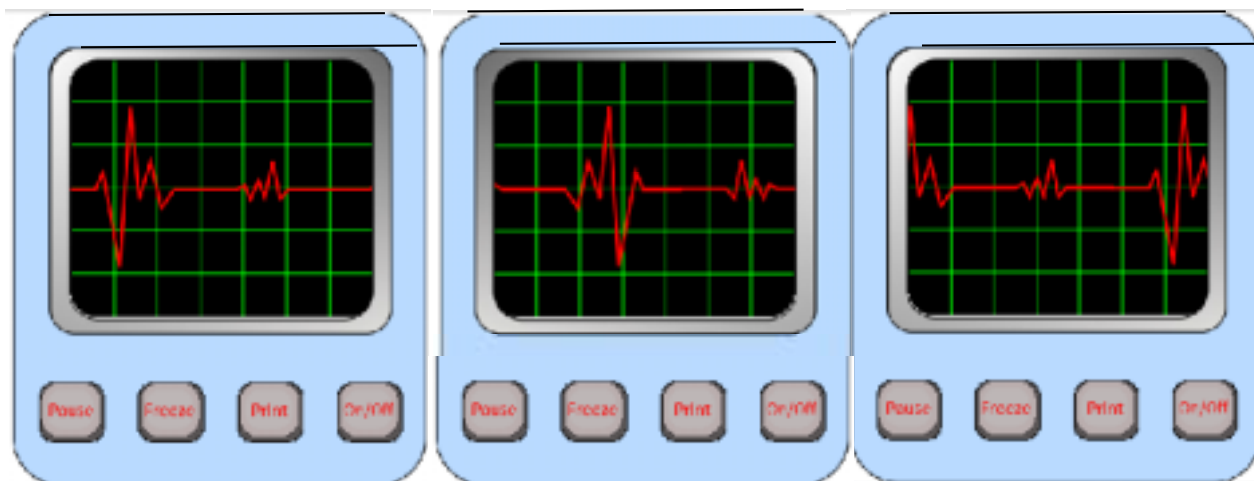
Task 1 – Graphics

Hmonitor image is saved in scalable vector graphics format	1
Symmetry and proportions match the image in the question paper (<i>awarded from a complete Hmon_ image</i>)	1
A uniform Light blue fill is used	1
The external corners of the image are rounded and consistent	1
There are 4 (<i>square-ish</i>) buttons	1
The buttons have an (<i>attempted</i>) 3D effect	1
The text on the buttons is correct and fits (<i>Horizontally and Vertically</i>)	1
The buttons are evenly spaced and centred in casing area	1
All the outlines are thin and consistent	1
The MetallInsert shape has external rounded corners	1
The MetallInsert shape has a (<i>greys</i>) gradient fill	1
The gradient fill is clearly light to dark – left to right	1
The gradient fill is clearly light to dark – top to bottom	1
The grid has a black background	1
The gridlines are green	1
The grid consists entirely of squares	1
The grid is made up of 6 lines X 5 lines	1

The Grid image is saved separately	1
The Casing image is saved separately	1
The Casing has a transparent area	1
The Casing has internal rounded corners	1
The MetallInsert image is saved separately	1
The MetallInsert has a transparent area	1
The MetallInsert has internal rounded corners	1
The Casing and MetallInsert images are saved in a format that supports transparency	1



[25]

Task 2 – Animation

The monitor image is completely visible	1
The monitor remains in proportion to the image in task 1	1
The Trace.png image provided is used	1
The animation plays smoothly and continuously	1
The trace is the correct size and the proportions are maintained	1
The animation of the trace is contiguous with no visible restart	1
The trace remains on the central gridline	1
The trace clearly plays from left to right	1
The large peak takes approximately 1 second to cross the grid	1
The trace is only visible on the grid	1
The trace travels in front of gridlines	1
The animation is saved in a format that plays in a browser	1
The animation is saved in a lossless format	1

The trace image traverses the grid left to right each second.

[13]

Task 3(a) – Spreadsheet – text manipulation in new worksheet

A new worksheet named “Working” is inserted in the workbook provided	1
The MediSuppliesList data is copied to the new worksheet	1

A column for the new SKU column is inserted and labelled	1
An efficient method to delimit each component of the SKU is used	1
A valid method to delimit the 1st 4 chrs – SKU# – is used	1
A valid method to delimit the supplier code – is used	1
A valid method to delimit the 6 digit item code is used	1

LEFT(), RIGHT(), MID() functions are used in the method	1
Functions to determine the position of the Supplier code are used e.g. ISTEXT(), ISNUMBER(), ISNONTTEXT etc.	1
Concatenation is used	1
170 New SKUs are created	1

There are a number of methods to determine the position of the supplier code and conditionally concatenate the elements for the new SKU.

Any single formula that works on both versions of the SKU will be awarded all the marks.

e.g.

	A	B	C	D	E
1	SKU	Description	Units per case	New SKU	
2	SKU#Av411560	Deluxe Gauze	8000 units per case	SKU#Av411560	
3	SKU#Av411561	Deluxe Gauze	20 units per case	SKU#Av411561	
4	SKU#Av411559	Deluxe Gauze Sponges- 1cm Non-Steri	8000 units per case	SKU#Av411559	
5	SKU#303807Du	Gauze Pad/ 1cmx1cm/ 12 ply/ Sterile	50 units per case	SKU#Du303807	
6	SKU#303806Du	Gauze Pad/ 1cmx1cm/ 12 ply/ Sterile	60 units per case	SKU#Du303806	
7	SKU#304016Du	Gauze Pad/ 1cmx1cm/ 12 ply/ Sterile/	24 units per case	SKU#Du304016	

e.g.

	A	B	C	D	E
1	SKU	Description	Units per case	New SKU	
2	SKU#Av411560	Deluxe Gauze	8000 units per case	SKU#Av411560	
3	SKU#Av411561	Deluxe Gauze	20 units per case	SKU#Av411561	
4	SKU#Av411559	Deluxe Gauze Sponges- 1cm Non-Sterile	8000 units per case	SKU#Av411559	
5	SKU#303807Du	Gauze Pad/ 1cmx1cm/ 12 ply/ Sterile	50 units per case	SKU#Du303807	
6	SKU#303806Du	Gauze Pad/ 1cmx1cm/ 12 ply/ Sterile	60 units per case	SKU#Du303806	
7	SKU#304016Du	Gauze Pad/ 1cmx1cm/ 12 ply/ Sterile/	24 units per case	SKU#Du304016	

Other formulae involving FIND(), SEARCH, TYPE(VALUE()) and CODE() functions may be successfully designed to work.

Task 3(b) – work in *Revised MediStock Data Worksheet*

	A	B	C	D	E
1	Supplier Code	Supplier Name	Old SKU	New SKU	Description
2	Av	Avant	SKU#Av411560	SKU#Av411560	Deluxe Gauze
3	Av	Avant	SKU#Av411561	SKU#Av411561	Deluxe Gauze
4	Av	Avant	SKU#Av411559	SKU#Av411559	Deluxe Gauze Sponges- 1cm Non-Sterile
5	Du	Dukal	SKU#303807Du	SKU#Du303807	Gauze Pad/ 1cmx1cm/ 12 ply/ Sterile
6	Du	Dukal	SKU#303806Du	SKU#Du303806	Gauze Pad/ 1cmx1cm/ 12 ply/ Sterile
7	Du	Dukal	SKU#304016Du	SKU#Du304016	Gauze Pad/ 1cmx1cm/ 12 ply/ Sterile/ 1/pk 25pk/bx/ 24bx/cs
8	Du	Dukal	SKU#104009Du	SKU#Du104009	Gauze Pad/ 1cmx1cm/ 12 ply/ Sterile/ 1/pk 3600pk/cs

All the new SKUs are displayed in the Revised MediStock Data worksheet	1
The correct Descriptions are copied to the Revised MediStock Data worksheet	1
The correct Units per case are copied to the Revised MediStock Data worksheet	1
The labels remain intact	1
The correct Supplier codes are shown	1
The correct matching Supplier names are shown	1

	A	B
1	Supplier Code	Supplier Name
2	=MID(D2,5,2)	=INDEX(Suppliers!\$A\$2:\$B\$11,MATCH(A2,Suppliers!\$B\$2:\$B\$11,0),1)
3	=MID(D3,5,2)	=INDEX(Suppliers!\$A\$2:\$B\$11,MATCH(A3,Suppliers!\$B\$2:\$B\$11,0),1)
4	=MID(D4,5,2)	=INDEX(Suppliers!\$A\$2:\$B\$11,MATCH(A4,Suppliers!\$B\$2:\$B\$11,0),1)
5	=MID(D5,5,2)	=INDEX(Suppliers!\$A\$2:\$B\$11,MATCH(A5,Suppliers!\$B\$2:\$B\$11,0),1)
6	=MID(D6,5,2)	=INDEX(Suppliers!\$A\$2:\$B\$11,MATCH(A6,Suppliers!\$B\$2:\$B\$11,0),1)
7	=MID(D7,5,2)	=INDEX(Suppliers!\$A\$2:\$B\$11,MATCH(A7,Suppliers!\$B\$2:\$B\$11,0),1)
8	=MID(D8,5,2)	=INDEX(Suppliers!\$A\$2:\$B\$11,MATCH(A8,Suppliers!\$B\$2:\$B\$11,0),1)

A valid formula for extracting the Supplier Codes is used	1
The MATCH() formula is used in the lookup of the Supplier Name	1
The correct references are used – e.g. – A2,Suppliers!B\$2:B\$11	1
The INDEX() formula is used in the lookup of the Supplier Name	1
The correct references are used – e.g. – Suppliers!A\$2:A\$11	1

The use of VLOOKUP() on re-ordered data is not deemed to be an efficient solution. Marks are awarded, however, for the correct results.

The “Unit per case” text is removed from the data	1
The “Single unit case” text remains in the data	1

F
Units per case
8000
20
8000
50
60
24
24
3600
24
3600
60
24
1800
12
8000
2000
2000
Single unit case
25

[24]

Task 4 – New data source and Merge Document

The new data source is saved as MediMergeData (in any usable source format)	1
The parsing is valid and non-manual (single Unknown)	1
Valid field names are maintained e.g. Contact_Title, Forename, Surname	1

e.g.

Contact_Title	Forename	Surname
Unknown		
Monsieur	Panza	Amarilla
Mademoiselle	Luz	Rojo
Madame	Blanco	Lechoso
Dr.	Morado	Real
Mademoiselle	Enel	Rosado
Monsieur	Ojo	Negro
Mademoiselle	Gretna	Verde
Monsieur	Feelin	Azul
Monsieur	Gris	Sucio

{ DATE \@ "dd:MMMM:yyyy" * MERGEFORMAT }

The date field is in the correct format

1

{ MERGEFIELD Supplier }

{ MERGEFIELD Address1 }

{ MERGEFIELD Address2 }

{ MERGEFIELD Address3 }

{ MERGEFIELD ZipCode }

The supplier name
mergefield is
inserted

1

Address fields
mergefields and the
Zip Code mergefield
are inserted

1

The mergefield
layout and spacing
is as shown

1

Nested solution

```
Dear { IF { MERGEFIELD Contact_Title } = "Unknown" "Sir/Madam" "{ IF { MERGEFIELD Contact_Title } = "Dr." "{ MERGEFIELD Contact_Title } { MERGEFIELD Forename } { MERGEFIELD Surname }" "{ MERGEFIELD Forename }" }
```

Linear solution

```
Dear { IF { MERGEFIELD Contact_Title } = "Unknown" "Sir/Madam" "" } { IF { MERGEFIELD Contact_Title } = "Dr." "Dr. " "" } { IF { MERGEFIELD Contact_Title } <> "Unknown" "{ MERGEFIELD Forename }" "" } { IF { MERGEFIELD Contact_Title } = "Dr." "{ MERGEFIELD Surname }," "," }
```

A conditional mergefield is used for the salutation	1
The conditional mergefield tests for "Unknown"	1
The conditional mergefield tests for "Dr."	1
The conditional mergefield would default correctly or tests for "<>Unknown" or equivalent	1

{ IF { MERGEFIELD Contact_Title } = "Unknown" "Yours faithfully" "Yours sincerely" },

A conditional Mergefield is used for the closure	1
The conditional mergefield test for "Unknown" would result in – “Yours faithfully” if TRUE	1
The conditional mergefield test for "Unknown" would result in – “Yours sincerely” if FALSE	1
The conditional mergefield uses the default condition not a new condition	1

{ SKIPIF { MERGEFIELD Supplier_code } = "SF" }
 { SKIPIF { MERGEFIELD Supplier_code } = "Me" }
 { SKIPIF { MERGEFIELD Supplier_code } = "GS" }

Evidence of exclusion for So-Form <i>May be seen as filtered in the evidence document</i>	1
Evidence of exclusion for Me & GS <i>May be seen as filtered in the evidence document</i>	1

Task 4 – Merged letters

Avant 95 Rue Ennassiria El Ganara Gherifat 6124 Dear Sir/Madam, Yours faithfully,	Dukal 119 Rue Kilani Metoui Sidi Salem Sidi Salem 9100 Dear Dr. Morado Real, Yours sincerely,	Bulkee 118 Rue Talleyrand El Araria Dhriaat 2116 Dear Panza, Yours sincerely,	Caring 147 Rue Hedi Nooman Cite El Fatimi Betaha 5180 Dear Luz, Yours sincerely,
Closeout Care 37 Rue du Koweit Cite Sanit Sheikh Hicher 8050 Dear Blanco, Yours sincerely,	Health Smart 150 Rue Abdelkader Cite El Ilm El Jem 9120 Dear Ojo, Yours sincerely,	Supra 90 Rue Ibn Al Jazzar Chott El Khalij Bekalta 8050 Dear Gris, Yours sincerely,	

7 letters are generated	1
The letter to Avant has Sir/Madam as the salutation	1
The letter to Dukal has Dr. Morado Real as the salutation	1
The remaining 5 letters have the forenames as the salutation	1
The letters have the correct closures, are <i>proofed</i> and are fit for purpose	1

[22]

Task 5 – Correct the errors in JavaScript

```

</script>
function task5()
{
var value1 = prompt ("1st number", 0);
var value2 = prompt ("2nd number",0);//variable 1* to convert to number
var value3 = 1*value1 + 1*value2 //3rd variable created to avoid summing in the alert
alert("The answer is " + value3)// value3 still text but now correct value
}
</script>

```

A method to ensure values are treated as numeric inserted is used e.g. the use of value1*1 , parseInt(value1) or Number(value1)	1
A method to ensure the values are summed correctly is used e.g. the use of a 3rd variable	1

... the “Prompts” still work (<i>only allowed if valid new code is inserted</i>)	1
The correct sum is displayed	1
The correct sum is displayed in an alert box ...with the correct text – “The answer is (<i>space</i>) sum”	1
The page resets (<i>only allowed if valid new code inserted</i>)	1
Valid comments are inserted The correct syntax for comments is used. (<i>// is seen</i>)	1
The comments explain the additional code	1



[8]

Evidence document inclusions**Task 2b – IT in Medicare**

Use 1 Use 2 Use 3	Any 3 from:	Databases e.g. Patient records, scheduling appointments, patient monitoring equipment, body scanners, expert systems for diagnosis etc. Plus – any adequately described application including medical research, DNA sequencing, robotic surgery, prosthetics, Implants-pacemaker, communication systems, support for the disabled. If enough explanation.
-------------------------	-------------	--

Valid use of IT in medicine 1	1
Valid use of IT in medicine 2	1
Valid use of IT in medicine 3	1

Marks for references to databases are awarded only once in each Use or Advantage/Disadvantage category.

Advantage 1	Information available at different sites, legibility, records always up to date, efficient appts, 24/7 monitoring in hospital or at home etc. Speedy test results on-line. Plus – any adequately described advantage.
Advantage 2	
Disadvantage 1	System failures, confidentiality/privacy, expense, training, over dependence. Plus – any adequately described disadvantage.
Disadvantage 2	

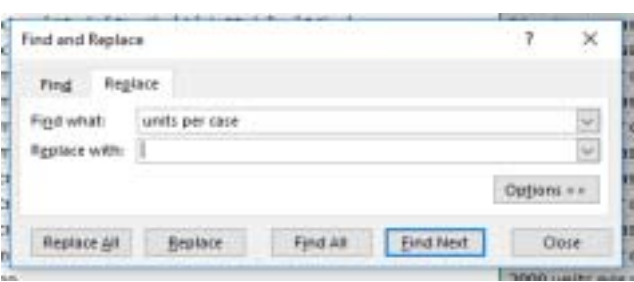
Advantage of the use of IT in Medicare – 1	1
Advantage of the use of IT in Medicare – 2	1
Disadvantage of the use of IT in Medicare – 1	1
Disadvantage of the use of IT in Medicare – 2	1

Submissions must refer to an application of IT in Medicare.

[7]

Method for steps possibly not obvious from workbook

Task 3 – An example of a method for removing “Units per case” for column F

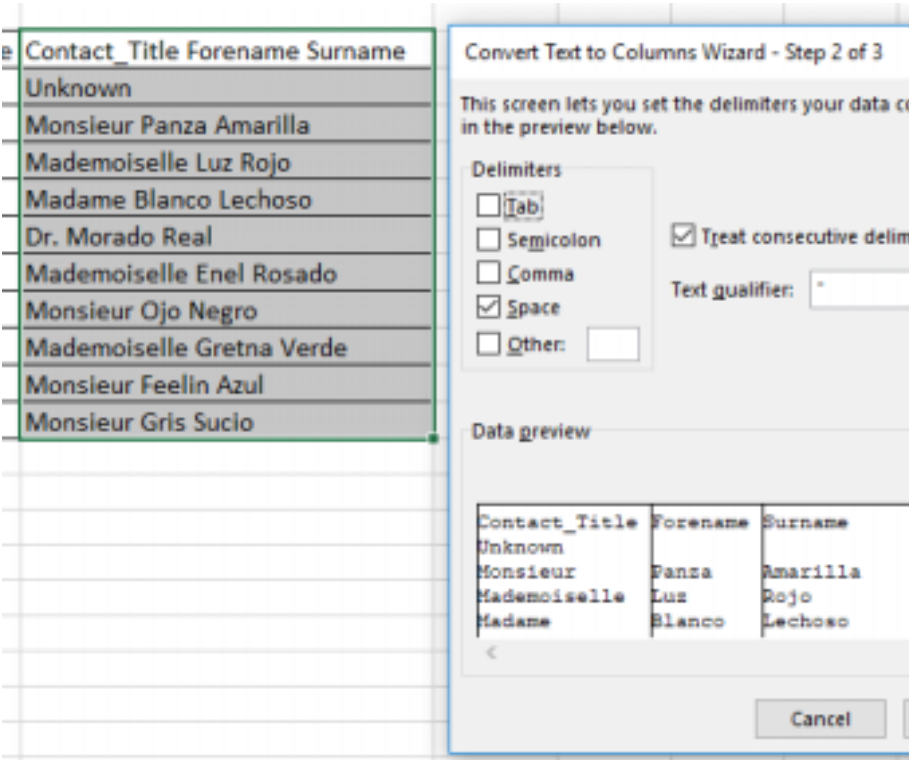


F
Units per case
8000 units per case
20 units per case
8000 units per case
50 units per case
60 units per case
24 units per case
24 units per case
3600 units per case
24 units per case
3600 units per case
24 units per case
60 units per case
60 units per case
24 units per case
1800 units per case
12 units per case
8000 units per case
2000 units per case
2000 units per case

F	G
Units per case	
	8000
	20
	8000
	50
	60
	24
	24
	3600
	24
	3600
	60
	24
	1800
	12
	8000
	2000
	2000
	Single unit case

[1]

Task 4 – An example of parsing the Contact_Title Forename Surname field to separate fields for the Mergedata source document



Evidence of method to separate Titles and names	1
Efficiency e.g. Text to columns	1
Split to 3 fields	1

[3]

Task 5 – Explaining and correcting the errors in the JavaScript

Explanation of errors in the code	E.g. Default format for variables is text Using methods such as parseInt() or *1 converts to number Concatenation using + sign in alert reverts variables to text.
Details and explanations of the correction/additions made to the code	E.g. Using parseInt() or *1 on the values and creating 3rd variable ensures sum of numbers. Concatenation in alert still converts the number to text but the result displayed is still correct.

Task 5	Valid explanation of errors	1
	Valid explanation of corrections	1

[2]

Task 6 – Analyse the possibilities for the use of smartphone apps in caring for the elderly

Possibilities	3/2 split from	E.g. Sensors for: • Fall prevention/detection • Biometric data monitoring • Sleep patterns • Medication monitoring Alerts and communication Plus – any adequately described application.
Problems		E.g. Elderly less likely own their own smartphone Expense of smartphones if supplied Elderly more difficult to train in use Privacy issues Allow valid social issues – lack of interactions etc. Plus -any adequately described issue.

Possibility 1	1
Possibility 2	1
Possibility 3/Problem 1	1
Problem 2	1
Problem 3	1

Must be relevant to the use of smartphones, monitoring and relevant communication.

[5]