GCE EXAMINERS' REPORTS

GCE (NEW)
ICT
AS/Advanced

SUMMER 2019

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INFORMATION TECHNOLOGY

General Certificate of Education (New)

Summer 2019

Advanced Subsidiary/Advanced

Unit 1 Information Systems

General Comments

It is disappointing to see the poor responses to the new topics introduced into the examination. An attempt has been made in this and last year's marking schemes to guide teachers and candidates to the level of knowledge required. Another worrying trend seems to be the amount of heavy cropping of the spreadsheet evidence. It makes it quite difficult, in some cases to support the candidates' answers.

Comments on individual questions/sections

Q.1 Most candidates could define data but fewer could give a good definition of knowledge. A number of candidates spoiled their examples of data by including units or stating what the data represents before the values. Candidates also need to remember that knowledge is two-stage and shows the application of a rule, otherwise it is still information. A number of candidates were only able to give one example.

Q.2 Most candidates could give an example of one or two of the characteristics but could not really describe them. A number of candidates did not read the question thoroughly and attempted to write about accuracy even through this was precluded by the question.

Q.3 **(a)** The question required candidates to apply their knowledge of validation methods to a bank account number. Unfortunately, a significant number of candidates did not seem to have read that part of the question or just mentioned general methods and not described them as required. It would not be sensible to use a range check on this number.

(b) Very few candidates could select and justify the appropriate method, check digit.

Q.4 Most candidates could give one or two advantages of electronic processing but fewer gave appropriate matching examples and were far too general in their responses.

Q.5 The majority of candidates did not seem to realise that this was a new area and concerned topics such as cloud storage and dropbox services.

Q.6 This was from another new area of the specification and was not as well answered as we would expect. A significant number of candidates did not realise what the 'Internet of Things' is and instead referred to areas such as healthcare areas, expert systems and medical databases.

Q.7 Most candidates could give an advantage or disadvantage of multi-player gaming. Very few candidates seemed to realise what remote gaming is. These are both new areas and studying the marking scheme would help to cover this area.

Q.8 **(a)** **(i)** The more able candidates were able to describe barcodes and QR codes but weaker candidates were very vague in their descriptions even of bar codes.

(ii) Most candidates were able to give an advantage or disadvantage of QR codes.

(b) **(i)** It was disappointing to see so many candidates unable to describe more than one stage in the 'Just in Time' stock control system.

(ii) Most candidates could give one advantage or disadvantage.

(c) **(i)** Even though they all probably use NFC payments, only a minority could explain what is meant by it.

(ii) Most candidates could give an advantage or disadvantage of NFC payments.

Q.9 Most candidates could give an advantage or disadvantage of car crash simulation modelling. A significant number discussed cost, which was precluded by the question. Candidates also need to be more detailed in their responses.

Q.10 Very few candidates seemed to be aware of what 'goal seek' is even though it is specifically mentioned in the specification. When candidates had obviously covered the topic, few answers were seen.

Q.11 Candidates who had been led in their spreadsheets found it very difficult to explain what they had done, let alone explain why. Candidates can only label their screenshots with the name of the function and not explain anything else. It also makes it easier to find and agree the evidence, if candidates number their pages and refer to these numbers in their answers. Over-cropping is also becoming a big problem.

(a) Most candidates could give the "what" for one of the functions.

(b) Most candidates could demonstrate some understanding of start-up interfaces.

(c) Candidates tended to be able to state what sort or searches they used but then lost marks by not stating what cells/fields they were working on. Very few candidates seem to understand what they were using a lookup function for, nor describe why they used it.

Summary of key points

- Candidates need to study in depth the updated areas of the specification.
- Candidates need to take more ownership for their spreadsheets.
- Candidates should not crop their spreadsheet evidence and must label the evidence correctly.
- Candidates need to read the questions a lot more thoroughly

INFORMATION TECHNOLOGY

General Certificate of Education (New)

Summer 2019

Advanced Subsidiary/Advanced

Unit 2 Presenting Information

General Comments

Most centres understood the requirements of the new IT2 coursework requirements. Some centres are awarding marks for *advanced features* when this is no longer a requirement.

Many centres used the new one sheet marking grid downloadable from the WJEC website and these tended to be the centres who assessed very accurately.

Most of the candidates' evidence was well organised and presented as one continuous report which was clear and easy to follow.

Centre are advised to look at the appendix of last year's report, to get more detailed guidance on assessment.

Comments on individual questions/sections

ANALYSIS

Background: This was done well.

Identification of 3 documents
This was much improved with candidates supplying and identifying three different types of documents and for each type of document, outline its purpose and its potential audience.

Ethos & house style
Candidates are required to:

- Identify the house style or philosophy, vision or persona being reflected by the document.
- How is the house style achieved?

Common mistakes

- Some centres awarded marks for descriptions rather than an analysis.
- Some candidates are still not being analytical and only described colour schemes, fonts, etc.
- Candidates do not know how it is achieved even if they get the first mark.

ANALYSIS OF AN ORGANISATION'S DOCUMENT

This section is still not interpreted well by centres and its mainly the reason for the majority of disagreement between the moderator and the centre assessment.

Detailed analysis of two paper-based DTP documents.

*C*andidates must:

- Describe in detail the data/information in two paper-based documents. Extended purpose is not enough.
- Identify and label four different DTP techniques used in two paper DTP documents from their organisation. Candidates must draw an arrow/circle, screenshot the feature and not just give a list of DTP features.
    - This does **not** include fonts and font styles.
    - It does **not** include clipart/logos unless some photo editing feature is identified.
    - All 3 of bold, centre and underline must be present and can only be awarded as 1 mark.
- They cannot use their own documents created in task 1 and task 2.
- They cannot say potential documents for this section and they cannot use a website or presentation or their automated document.
- It is **not** acceptable to use a website in the analysis of two DTP (paper) documents. We are looking for the purpose, data and audience of both documents.

The moderator cannot support marks for features which cannot be seen.

Section 2 Automated documents

For section 2 the candidate should try to get an automated document.

- **However, if this is not possible,** they can take an approach of identifying a process which could be automated and result in a potential 'automated document' that the organisation could use.
- They must describe in detail the data and the mail merged fields no matter which approach is used.

The marking scheme states:

1st mark for a description of the purpose, data/information contained in the document and audience of an actual document or a potential document.
The description of the data/information is in the same detail as the paper DTP documents. A general statement about the purpose is not enough.

2nd mark is for listing/identifying in detail the individual fields which would be in the database linked to the document.
Therefore, e.g. name and address are too general and should not be awarded a mark. They need to list Title, First name, Surname, etc……..

Some centres are still giving the mark when they just say address block and this is incorrect.

Section 3 Webpage or presentation

The candidate should analyse the organisation's website or a presentation used by the organisation.

- If the organisation does not have a website, they can analyse the website of a similar organisation.
- If there is no similar organisation, they could describe in detail the data, multimedia and web features that would be contained within a potential website for their organisation.

This was generally done well but it is still worth noting the following for new centres:

When analysing an existing or potential web page, candidates are required to **identify/annotate/circle/arrow at least 4 different techniques** which are used.

Some candidates incorrectly identified DTP features instead of multimedia features.

If there was no website or presentation and candidates chose to identify potential ones, they must describe in detail multimedia features which could potentially be used to get the second mark.
Vague statements such as could include hyperlinks, sound and a video should not be credited. What would the hyperlinks do in detail? What would the video be about and what is its purpose etc.

It is possible to have a mixture of the two approaches. If a website is basic and a candidate can only identify two multimedia features, they could suggest how it could be improved by giving two extra suggestions for other multimedia features that could be used.

TASK 1

Plan and purpose of the candidates own document
Many candidates still provide very detailed plans of their leaflet as required by the legacy specification but this is no longer required. Some candidates did not have any plan.

Candidates should:

- Outline the purpose of their leaflet
- Say who is the target audience
- Outline the size and orientation of their leaflet e.g. A4 double sided / 2 sides, landscape leaflet or draw outline layout with inherent page orientation and frames. Candidates are no longer required to give details of data, fonts and features to be used.

Analysis of house style of the candidates own leaflet
Again, these tended to be scant in detail and too descriptive.

Candidates are required to**:**

- Describe what house style or ethos they wish to achieve
- State what techniques they are going to use to achieve this in their leaflet

Production of the leaflet
A screenshot of both sides of the leaflet must be included and it would be helpful if the candidate annotated the features used.

Advanced skills
Centres should be aware that the requirements have changed with some advanced skills now becoming basic skills and some having been removed from the list.
Before and after evidence must be provided.

Candidates are expected to choose 6 of the following:

- Different paragraph formats
- Different line spacing
- Superscript and subscript, needs both and must have a sensible use
- Set and use own tabs
- Set and use own indents

- Sensible use of Watermarks
- Pagination
- Automatic contents page
- Create own style sheets – not just select from menu/change shading/change font
- Create and insert graphs, smart art
- Complex use of photo editing to create original graphic. This must be complex and beyond the standard of GCSE ICT Unit 4.

Some candidates did produce work of the required standard by using multiple layers / three images with background removed (not just white background removed by magic wand) and merged/blurring/shadows/lens/flare effects/text effects applied to different layers.

Again, there was some very good use of smart art and graphs created by the candidate.

TASK 2

Purpose of document and audience of document: done well.

House style – This should be professional in style and done in a formal answer. Applied consistently throughout.

Design of automated fields and THREE macros.
Many candidates designed the fields but not three macros. These can be done as a bullet list/paragraph format or in an outline document.
NB there is no need to design the fonts or data to be used.

Use of Basic Features
Again, it is worth noting that **any** spelling or grammar mistake in the database or the letter will be penalised. Candidates should also check for capital letter mistakes in the data from the database.

Candidates should ensure they have the contact details and the date on the letter.

Use of Advanced features
Some centres were still following the old specification and re-using templates etc.

Record three simple macros
Most candidates did provide the required evidence of recording the macros with the actual template letter in the background or evidence of testing each macro is required and must see the result of the macro on the document. Must include coding for all three macros - 3 marks.

- Again, this was done well but some candidates need to think about the 'professionalism' of their macros. **Irrelevant macros** should not be credited e.g. first macro puts in Yours; second macro puts in sincerely; third macro puts in a comma.
- Candidates should **not** be given credit for macros which already exist on the toolbar **e.g. print and save.**
- There is still a problem with copy and paste macros in a few centres. **Do not copy and paste macros.**
- Please note that **unless the macro code is included,** no marks should be awarded for macros.
- Changing of font or text size in the macro must have a written justification as to why this is needed.

Use of advanced reviewing tools such as comments, tracking changes, mark-ups etc.
These reviewing tool must be applied to the original template before it is used in the mailmerge and not as a separate exercise on a different document.
Candidates must show clear evidence of at least **two** different tools being used and with evidence of at least **3** of each within 2 categories e.g.

- **3 comments**
- **3 track changes**
- **3 mark-ups sections**

Before and after evidence is required.

Search and Replace
One sensible search and replace is sufficient. However, irrelevant activities such as deliberately putting in a spelling mistake to find it and replace it will not be awarded marks. This is the function of a spellchecker.
Before and after evidence is required.

Use of Visual Basic or embedded code
This was generally either done well or not attempted. However, there were some misinterpretations.

- These need to be original and written completely from scratch
- They should not replicate a function that is already there e.g. count characters, save and this includes combining two functions into one, e.g. bold and italic text
- They should not just be a simple edit of an existing macro
- They should not just be a message, there has to be an event
- They must be applied to this mailmerge template and not a different document

TASK 3

Again, the evidence for this was generally very good.

Purpose –done well

Design of master slide or webpage
Some candidates were following the requirements of the old specification and designing all 6 slides/pages in detail. This is no longer a requirement.
Candidates need to design **one master slide** or **one** master page only showing basic layout and navigation features**,** background style and outline layout of the presentation with inherent page orientation.

Structure diagram showing pathways
A diagram showing structure of document showing hyperlinks to and from pages/slides and pages/slides should be specifically named not just slide 1, slide 2 etc.

Basic features

Background style
This must be original and not chosen from a library of design styles.
They were generally very well done.

Animations and transitions using INTERNAL features of the software.
Again, usually very well done.

For new centres it might be useful to note that candidates doing web pages that:

- For animations, candidates could use scrolling banners/leader boards/interactive galleries etc.
- For transitions, they can use rollover buttons or some edited the html coding to change the colour sequence from one page to another. If the software has linked features, another alternative for transitions could be interactive image effects.

Evidence must be clearly provided. It must be made clear if the technique is used as transitions and not repeated for animations.

Hotspot/hyperlinks and bookmarks were generally done well with good supporting evidence.

It is important that candidates do not crop evidence or make screenshots so small that moderators are unable to see the links created.

Advanced features

Use of Sound
Again, done well. Most candidates now attempt to capture sound or create original sound rather than load sound files in from a library or backing store in order to gain the extra mark.

Use of original video
It must be an original video. Candidates should take their own video footage or take their own original photos to use in the film. **If they use images from the internet it is not original** and should not be awarded this mark.

Many candidates produced their own original individual video and applied effects but some gave much reduced sized or cropped screenshots, so it was difficult to see the evidence. Candidates should be encouraged to annotate their screenshot evidence with at least a title to say what the screenshot is showing.

Video and transition effects on the movie
Candidates must show clear evidence of both techniques for 1 mark

Use of original animation using EXTERNAL software packages
Simple animation for 1 mark
Candidates provided evidence of:
3D text maker, graphic grows or shrinks, simple flash type animation (making a ball bounce).
Simple motion e.g. car moves across the screen/ test it moves backward and forward along the screen or banner.

To gain the extra advanced animation mark
Candidates had to create an extended animation which had complex activity, regardless of how many layers there were.

One issue moderator was seeing if the animation was complex in its activities, as only 1 screenshot was shown or cropped screenshots.
NB Two simple animations do not make a complex animation.

Embedded games or interactive element
Centres chose to do a very wide variety of different tasks.
In general, two common examples:

- External gaming or interactive software
- Internal VB/macro coding/HTML/Java.

EXCLUSIONS

- No games templates like blockbuster, must be original
- Embedded or linked original games, not an animation
- No navigational triggers e.g. drop-down menus to get to slides.

The marking schemes applied to them was the same:

1 mark create basis tools
1 mark have an event
1 mark test the event/code works (code must be shown if used)

Candidates generally had the first two marks but many failed to get the third mark because they did not test or show how their coding worked.

The following is intended as a general guide to marking these tasks:

Quizzes

1st mark create quiz
2nd mark on selection of answer, say if correct or not
3rd mark

- Run quiz and show timer on /countdown clock linked to restrict answering after a certain time
- Run quiz and give final scores.

Millionaire type games

1st mark create original game
2nd mark show the links to correct or incorrect message answers
3rd mark would be showing evidence of running and outputting

- for doing some sort of counting
- doubling total if you get it all right
- counting down the number of attempts.

Other sample VBA code

Example worth two marks

1st mark use VB to draw a simple rectangle/button/draw a box rectangle to select or enter data
2nd mark single simple event happen *on mouse over a message pops up.*
The above was very common but other than a message nothing happened. And hence only worth two marks.

Example worth three marks

VB password tutorial
1st mark use VB to draw simple rectangles to enter data, user name and password
2nd mark single simple event happens *e.g. open a form*
3rd mark

- Only give 3 goes and close
- If selection is linked to a populated combo box and open different forms.

Evidence must be provided if it works both with the correct password and incorrect password.

EVALUATION

Again, centres do not seem to understand the requirements of the strengthened specification and were giving maximum marks for weak descriptive evaluations. This knocked centres out of tolerance.
Many evaluations did not achieve the final four critical analysis marks. Candidates need to provide **very detailed** critical analysis of all the tasks components of:

- the data
- system
- several future modifications in all three tasks.

Most candidates did achieve the final QWC mark.

Brief and **not all tasks**.	1
Brief **description** of what they did in all three tasks but little analysis.	2
Some future improvements suggested.	2
Some **analysis** and Identification of some good points and explanation of why it's good in all three tasks and some improvements.	2
Detailed analysis and evaluation of all three tasks and some improvements and some criticisms.	2
Detailed analysis and criticisms of all three tasks and some improvements.	2
Very detailed critical analysis of components in all three tasks which examines the data, system and suggests several future modifications in all three tasks.	2
Quality of report and QWC	1

Compression techniques used

This was generally done well but we still see occurrences of generalised discussions of compression techniques.

Candidates must talk about the compression techniques they utilised in their tasks.

Please note:

- If techniques are not relevant to the documents, NO MARKS will be awarded.
- If general discussion is unrelated to what they did, MAX 2 marks
- If only 1 or 2 compression techniques discussed, only 1 mark MAX
- if copied and pasted from internet then NO MARKS
- Zip and field sizes are not evidence of compression.

Summary of key points

Contained within comments on individual questions/section (as above)

INFORMATION TECHNOLOGY

General Certificate of Education (New)

Summer 2019

Advanced Subsidiary/Advanced

Unit 3 Use and Impact of ICT

General Comments

It is disappointing to see the poor responses to the new topics introduced into the examination. An attempt has been made in this year's marking schemes to guide teachers and candidates to the level of knowledge required. Candidates continue to write to a high standard.

Comments on individual questions/sections

Q.1 Most candidates responded well to this question but a significant number of candidates dropped marks by not matching up a method with an actual disability. When discussing the expertise of the user some candidates lost marks by responding to other user requirements such as the task itself.

Q.2 This was a new area and was not well covered. Few candidates were able to describe what is meant by EDI, though more were able to give an advantage.

Q.3 Candidates did not seem to be aware of the requirements or mentioned payment methods, despite it being excluded by the question.

Q.4 There were some very good answers here with the majority being able to give two factors. It was surprising to see the number of candidates who didn't mention the risk or give examples.

Q.5 Most candidates could give an advantage or disadvantage of a mesh network configuration. Too many though, confused their responses as if for a client-server or peer to peer question.

Q.6 Again, a mixed response with the better candidates scoring very well and the weaker candidates not concentrating on the factors highlighted in the specification.

Q.7 Yet another new area which a significant number of candidates did not seem to have studied or read about. This is disappointing, candidates need to be aware from everyday life about these areas. The marking scheme gives teachers an indication of how this area could be developed.

Q.8 Candidates need to be more aware of the legal and moral issues associated with the use of information technology. The specification now gives more guidance and it was disappointing to see that candidates knew little more than the two common acts.

Q.9 A significant number of candidates were able to discuss at least one factor which contribute to the digital divide but all ICT students should be more aware of this area which will play a significant part of their future.

Q.10 Most candidates could give one factor that would be taken into account when designing security policies but they would benefit covering more areas.

Q.11 Again, a significant number did not write about the factors requested but gave responses linked to other factors. Most candidates could give good responses associated with cost.

Q.12 It was disappointing to see the number of candidates who didn't understand the terms data consistency, redundancy and independence. For those who did understand, a significant number couldn't give appropriate examples.

Q.13 Candidates dropped marks by looking at existing hardware and software and concentrating on methods of finding information, rather than looking more generally at systems investigation.

Q.14 It was very disappointing to see the number of candidates who couldn't explain what is meant by the term distributed databases or confused this issue with distributed processing. This is an area which should be studied more thoroughly.

Q.15 This is a topic which has been moved from IT1 to IT3, as it was felt it sat better here but it was still poorly answered by a significant number. Candidates need to consider what adding value to decision making means.

Q.16 Most candidates could give a brief description of one or two of the characteristics but couldn't give the level of detail needed for good marks.

Q.17 This is a question which needed detail and the ways are spelt out in the specification. It was hoped that precluding one way would indicate the level of response required. There were some excellent answers seen from the better candidates.

Summary of key points

- Candidates need to study in depth the updated areas of the specification.
- Greater depth is needed in candidate responses.
- Candidates need to be more aware of the impact of ICT in everyday life.
- Candidates need to read the questions a lot more thoroughly.

INFORMATION TECHNOLOGY

General Certificate of Education (New)

Summer 2019

Advanced Subsidiary/Advanced

Unit 4 Relational Databases

General Comments

Administration

The use of the new one page marking grid was very helpful to the moderation process. This is downloadable from the WJEC website and helps to show where the centre awarded the marks.

Some centres did not follow the requirements of the new NEA IT Specification. The above marking grid would help to clarify what is required.

Some centres combined elements of the old IT specification with the new specification producing a lot of unnecessary work that is no longer a requirement.

Comments on individual questions/sections

Background

The two previous sections have been combined for 1 mark in the strengthened specification. For one mark, candidates are now required to show a clear understanding of the background to the problem, including a description of data processing activities.

USER REQUIREMENTS /EXPECTED OUTCOMES /AIMS AND OBJECTIVES
Whilst most centres assessed this section accurately, there were some that gave full marks for an outline analysis.

For full marks in this section, candidates are required to produce a clear statement of the requirements of the end user. Some centres called this *'expected outcomes'* and other *'aims and objectives*' which is fine.

Candidates should cover all of the following:

- Data capture and inputs
- Processes including security queries calculations sorts etc.
- Reports and any other outputs
- Ethos and house style
- Quality and depth of analysis (2).

Candidates are supposed to consider the user requirements from the non-specialist user perspective. No matter how detailed, if this section reads like a retrospective list of what they did with over technical language, then 1 mark should be deducted.

The following are usually done well.

- Details of specific user interface requirements of the system
- Entity Relationship Diagram.

NB A list of hardware is no longer required.

DESIGN

Data dictionary was done well.

Normalisation was done well.

One mark is available for identifying both primary keys and foreign keys.

However, many candidates failed to show the foreign keys. Some candidates adopted a non-standard method of identifying the foreign key but did not give a legend or guidance as to what their symbols meant. Moderators cannot make interpretations of what candidates might mean.

Design of Validation
A very critical area was disagreeing with centre assessment of validation design. Where moderators disagreed with the centre assessment it was either because the validation techniques chosen were simplistic or the design was too brief. Candidates should design four different types of validation techniques which are original and not reliant on in-built routines.

As reported in past specifications, the following are unacceptable to use at A level, as they are too simple and not complex enough.

Do not use:

- default wizards such as input masks for postcode Tel No Capitalised fields etc.
- drop lists or combo boxes but OR is acceptable if the evidence is provided
- just 'is not null' by itself; not >0; not presence = true but more complex and extended use is acceptable
- simple use of =date() =now() - they must have an extension
- simple format checks such as 99/99/99 or 00:00.

Not acceptable at A level:

- Data type checks
- Simple field length checks
- Default values or global input
- Use of Boolean Yes/No is not an acceptable data validation technique.

Only one of each type of validation should be attempted e.g. One '*Or'*, one *'range check using number'*.

We can accept a complex use of date ranges as separate type to numerical range checks.

More than one original input mask is acceptable e.g. email/ stock codes etc.

Validation techniques must be suitable and relevant to use if they are to be credited.

Explanation of chosen types of validation
This was often brief and just listing them in a table is not enough.

Candidates need to state:

- the type of validation techniques used
- their parameters
- explain the reasons for their choices of parameter.

NB If candidates design inappropriate validation techniques, marks for implementation and testing would be lost.

Design of a data entry routine using lookup table or code

- This was a new requirement of the specification and many centres misinterpreted it
- This is not just combo or list boxes
- This does not include calculations.

Candidates should design an automatic data entry into a field *e.g. if you put in an Id number then at least one other field will self-populate.* It could be in one table or across linked tables. What we would be looking for is the linkage between the fields.

Acceptable forms of design are:

- Diagrams
- Paragraphs
- Forms and table links.

Design of user-friendly, menu driven, front end interface and security
This was done well but candidates are no longer required to produce designs of their on-screen forms. Many candidates did this which meant overlong reports.

Design of queries
Candidates are required to design a variety of queries (including purpose and structure)

- Single table query with search criteria and this does not include SORTS
- Single table query with logical operator AND, NOT, OR, LIKE and search criterion /criteria
- Multiple table queries with search criterion/criteria
- Multiple table queries using relational links with no search criteria
- Parameter query
- Append or delete or update query
- TWO different queries using coded SQL.

Some centres did design eight queries but not the two SQL queries required.
Some candidates did the wrong type of query and some candidates did not give valid reasons as to why the output from the query is required by the organisation.

NB The single table query using logical operators such as

AND
NOT
OR
LIKE

Should **not** be:

- using only mathematical operators such a <=
- use two simple searches on two fields.

NB If candidates design an inappropriate query, they would lose the marks for Implementation, Testing and User Documentation. It is therefore possible to lose seven marks.

Design of reports including fields, original headers and footers and a calculation
NB All of these must be designed for 1 mark. Candidates no longer need to do sorting and grouping of data.

The calculation needs a detailed explanation and reason. It is not sufficient to say =Count() etc.

Candidates cannot just write the word 'Total' or 'Sum' etc. on a hand drawn report. They need to write an explanation of the parameters or formula.

Design of original VB code
These need to be more complex:

- These should not be macros created using the wizards
- It should not be buttons created using the wizards
- It should not replicate a function that is already on the toolbar or can be created using the wizards e.g. quit, close, open etc.
- Splash screen are now too simple for the strengthened specification unless they contain a complex event. Timers or pressing a button to open or close a form are insufficient.
- There should be two completely separate functions to the code. Extended password routines, one for general user and one for manager, is only 1 function.

Design of Calculations
All calculations whether in a report, table, query or form needs a detailed explanation and reason.

An extra query is required for a calculation and cannot be part of the set of eight queries listed above.

In general, understanding of this is improving.

IMPLEMENTATION

This is usually done well with clear evidence in design view in all sections. However, the mistakes in the design section are often carried through into implementation e.g. incorrect validation, incorrect queries, double counting calculation as a query etc.

NB **Two macros written with original code**
Candidates are required to create two macros which perform a different function NOT on form wizard buttons e.g. add record, print form etc.

Candidates can only have one navigation macro e.g. Open form/report/menu macro.

They should be encouraged to not just open and close macros. The other macro must have a different purpose.

Some of the other macros most commonly used by candidates are:

- Auto exec macros
- Hide data ok
- Print/print preview/form/report only once.

NB screenshot evidence is required for construction/design view.

Report with fields and data/ original header and footer /and calculation
All three are needed for 1 mark. Some candidates still do not have an original footer.
The latter does not include default values like date or page numbers and does not include the calculation.

SQL queries
The SQL code should be visible in the design view of the query, otherwise it would look like a standard query.

TESTING

Most of the testing section, (with a few exceptions see below) is now done well by candidates but some centres made their candidates do a lot of unnecessary testing.

Testing validation
In testing validation candidates only need to do six tests, acceptable validation routines e.g.
Candidates should test with valid data.
Candidates should test with extreme data.
For each of the four validation routines, candidates should test with invalid data - one test of each only.
There should be a clear test plan and labelled screenshots.

Testing reports
There needs to be a screenshot of the whole report or it needs to be printed out and included in the evidence folder. NB Reports do not need to have sorted and grouped fields.

Testing calculation in a form query or table
Candidates should dry run the calculation i.e. they should know the actual outcome of the calculation for one record. The outcome should be stated in the test plan, it can then be compared with a screenshot of the calculation in their record to see it is the same. Some candidates helpfully used the on-screen calculator to do this.

Some candidates only tested the calculation in a record and not the calculation they created in the query/ form/table.

USER DOCUMENTATION

Directory
It is unrealistic that the organisation for which the solution is produced would keep the database on a USB or desktop. Candidates should provide evidence of a proper directory structure stored on a hard drive.

Editing
The candidates only need to show before and after evidence of details of how to add **a new** record (the new record must be filled in) and **delete** and **edit** data in records via examples given in screenshots of data entry forms. Candidates are no longer required to show how to print or save a record.

Disaster recovery
Not all candidates gave detailed instructions as to how to respond to two different validation error messages. Some candidates only showed one error message.

Some candidates did not show the recovery phase of the disaster recovery section, only the backup of data.

EVALUATION

Centres were very generous in awarding marks in this section.

There were some examples of detailed evaluations but they did not meet the requirements of the new specification.

Candidates tended to give a commentary on what they did and not what was added or detracted value. Candidates are required to justify why it was a good point or a bad point.

Suggestions for improvements need to be concrete and not general.

To get the highest marks in the critical analysis section, candidates are required to provide a very critical and very detailed analysis of all aspects of their solution including the following:

- Research
- Design of database structure
- Solutions
- Testing
- User documentation
- Security and disaster recovery.

Further guidance to the evaluation was published on the WJEC website, this is attached.

Evaluation IT4 New Specification

MARK	1	2	3	4
Evaluation of the solution and effectiveness of the tools and techniques used.	Summary of what they did with no sense of why each tool or technique was valuable.	More detailed outline of what they did but still not identifying the value of the tool or technique and why this met the user requirements.	Evaluating the good points of the tools and techniques they have used and saying why they added value to the system /why this met some the user requirements. .	More detailed evaluation of the tools and techniques they have used and saying why they added value to the system and a detailed discussion of how they met the user requirements.

MARK	1	2	3	4	5	6
Critical analysis **Comments on modifications made**	Only one or two problems/ criticisms Mentioned with no clear strategy of how it was resolved.	Two problems/ criticisms mentioned with clear indication of how each problem was resolved.	**Critical and detailed** They should consider at least two problems they encountered and how they were resolved **In addition,** they should start to criticise their work; what was not good and why, must be concrete and not general.	**Critical and very detailed** They should consider at least two problems they encountered and how they were resolved. **In addition,** they should criticise their work in all of the following areas: **Data capture or input of data** **Processing of data** **Output produced** What was not good and why, must be concrete and not general.	**Very Critical and detailed** They should consider at least three problems they encountered and how they were resolved. **In addition,** they should provide detailed criticism of their solution including the following: **Research** **Design of database structure** **Solutions** **Security and disaster Recovery**	**Very Critical and very detailed** They should consider at least three problems they encountered and how they were resolved. **In addition,** they should provide detailed criticism of all aspects of their solution including the following: **Research** **Design of database structure** **Solutions** **Testing** **User documentation** **Security and disaster recovery**

MARK	1	2
Suggestions for future developments and improvements	Improvements in database structure only e.g. fields (sizes, types), extra tables, improved links etc.	Improvements in database structure, and in addition improvements in the processing of the data e.g. extra validations, queries, calculations, form design, reports, security etc.

Summary of key points

Contained within comments on individual questions/section (as above)

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