Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students’ responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students’ scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students’ reactions to a particular paper. Assumptions about future mark schemes on the basis of one year’s document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this mark scheme are available from aqa.org.uk
Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are marks in each level.

Before you apply the mark scheme to a student’s answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student’s answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, ie if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student’s answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner’s mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the Indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.
General guidance notes for examiners

Overall guidelines

1. All examples accepted should be clearly related to the subject area and should not be
   “generalised” examples.
2. Attention should be paid to ensure that marks are not awarded for simple restating of the
   question or the stem, often involving the exact same terms.
3. It should be remembered that scripts could be seen after they are marked and so consistency
   of approach and correct mechanics of marking are essential.
4. Rules on positioning of ticks and marks are to aid in checking and remarking of scripts.
5. Do not expect the candidate to use the exact wording given in the mark scheme. If you are in
   doubt as to the correctness of an answer given by the candidate, consult your Team Leader.
6. The answers given in the mark scheme are exemplars. Credit must be given for other correct
   answers not given in the mark scheme. Please refer to Team Leaders where there is any
   doubt.
7. One-word answers, where acceptable, will be indicated on the question paper.
8. The meaning of ICT-specific words and phrases are generally as defined by BCS Glossary of

Specific marking guidelines

9. The basic rule is one mark one tick. The tick to be positioned at the point where the mark is
   gained in the answer and definitely not in the margin.
10. The only figures in the margin should be sub-totals for parts of questions and a final total for
    the whole question in the box provided.
11. All writing must be marked as read, either by the presence of ticks or by striking through the
    script with a vertical line.
12. Where candidates have added extra to their answers on additional pages, the total mark
    should be indicated as ‘including x marks from supplementary page y’. The total mark should
    be written in the appropriate printed box on the question paper.
13. The use of the following symbols/marks is acceptable:
   a. BOD – where the benefit of the doubt is given for the point the candidate is making. This
      is generally where poor writing or English is an issue. Its widespread use should be
      avoided.
b. An omission sign ^ should be used where the candidate has given insufficient information to gain a mark. This is particularly useful when a teacher or student looks at scripts against a mark scheme.

c. It may be appropriate to indicate where the same point has been covered more than once by an arrow or where a point has been covered in several lines of prose by the use of brackets.

d. For questions where candidates’ answers are assessed for QWC, no individual ticks should be written on the script as it should be marked holistically.

14. Markers are responsible for checking:
   a. The transposition of marks to the front cover
   b. That all work has been marked on each script
   c. That all marks for individual questions are totalled correctly
   d. That the script total is transferred to the box at the top right of the script.
   e. That they clearly initial the script, under the total at the top right, so it is possible for the Principal Examiner to identify each markers work.
### Purpose of the question
Application of knowledge and understanding of output devices.

### Guidance for examiners on how to mark this question
One mark for each correct output device.

### Example answer
- a laser printer (1)
- b 3D printer (1)
- c ipad (1)
- d electronic photo album (1)

### Area of the specification and AOs this question covers
3.1.6, AO1.5
<table>
<thead>
<tr>
<th>2</th>
<th>There are potential health risks for regular users of ICT systems. What measures can be put in place to prevent back strain and RSI?</th>
<th>[4 marks]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purpose of the question</strong></td>
<td><strong>Application of knowledge and understanding of the health and safety legislation and regulations, the features of workstation equipment that should be provided and how a health problem could be prevented.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Guidance for examiners on how to mark this question</strong></td>
<td>One mark per point made. Both health risks must be addressed for full marks.</td>
<td></td>
</tr>
<tr>
<td><strong>Example answers</strong></td>
<td>A regular computer user requires a height-adjustable chair (1) to enable them to sit in the correct position for them (1) to ensure they do not suffer from backache by adjusting the chair to the correct height for the best posture (1) To prevent RSI they would require an ergonomic keyboard. (1)</td>
<td></td>
</tr>
<tr>
<td><strong>Area of the specification and AOs this question covers</strong></td>
<td>3.1.1, AO1.4</td>
<td></td>
</tr>
</tbody>
</table>
### 3 (a) What is the purpose of evaluating an ICT solution to a problem? [2 marks]

**Purpose of the question**
Knowledge and understanding of evaluation of an ICT-related solution.

**Guidance for examiners on how to mark this question**
1 or 2 marks for describing the purpose.

**Example answers**
Assessing the effectiveness of the solution (1) against the client's requirements for that solution. (1)

**Area of the specification and AOs this question covers**
3.1.10, AO2.6

### 3 (b) At the evaluation stage of an ICT solution to a problem, what questions would you need to ask yourself? [3 marks]

**Purpose of the question**
Knowledge and understanding of the evaluation and/or testing stages of an ICT-related solution.

**Guidance for examiners on how to mark this question**
1 mark for each question from the following.
- Does the solution do what it is supposed to do?
- Does the solution do it in the way it is supposed to do it?
- Is the solution an effective one?
- If it is not, then what is wrong with the solution?
- What would make the solution an effective one?

**Example answer**
The questions I would ask when I am evaluating an ICT solution are, firstly, does the solution do what it is supposed to do? (1) I would then ask, does the solution do it in the way it is supposed to do it? (1) Lastly, is the solution an effective one? (1)

**Area of the specification and AOs this question covers**
3.1.10, AO2.6.
4. Explain, using examples, what is meant by systems software and applications software. [8 marks]

**Purpose of the question**
Knowledge and understanding of systems software and Application Software

**Guidance for examiners on how to mark this question**

3 MARKS MUST BE FOR EXPANSIONS
Up to 3 marks for examples of applications software
Up to 3 marks for examples of systems software
Maximum 6 if only one type of software explained

**Example answer**

An operating system is an example of systems software. (1) A function of an OS is controlling where data is stored on disk (1) by finding space on disk and keeping track of file addresses. (1) An OS will also manage the printer queue. (1)

Applications software is used for day to day tasks. (1) For example, spreadsheet software (1) which can be used for keeping accounts (1) using formulas. (1)

**Area of the specification and AOs this question covers**

3.1.7, AO1.5.
<table>
<thead>
<tr>
<th></th>
<th>With reference to your Sample Work, identify who needed the solution.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5 (a) (i)</strong></td>
<td>With reference to your Sample Work, identify who needed the solution.</td>
<td><strong>[2 marks]</strong></td>
</tr>
<tr>
<td><strong>Purpose of the question</strong></td>
<td>Knowledge and understanding of the client being the person who needed the solution.</td>
<td></td>
</tr>
<tr>
<td><strong>Guidance for examiners on how to mark this question</strong></td>
<td>One mark for client. One mark for describing/naming the client.</td>
<td></td>
</tr>
<tr>
<td><strong>Example answer</strong></td>
<td>My client, (1) the owner of Gilly’s café, (1) needed to advertise.</td>
<td></td>
</tr>
<tr>
<td><strong>Area of the specification and AOs this question covers</strong></td>
<td>3.1.2, AO2.1.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>With reference to your Sample Work, identify one of the people who will use your solution and describe what they will use it for.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5 (a) (ii)</strong></td>
<td>With reference to your Sample Work, identify one of the people who will use your solution and describe what they will use it for.</td>
<td><strong>[3 marks]</strong></td>
</tr>
<tr>
<td><strong>Purpose of the question</strong></td>
<td>Knowledge and understanding of the user being the person who will update the solution.</td>
<td></td>
</tr>
<tr>
<td><strong>Guidance for examiners on how to mark this question</strong></td>
<td>One mark for describing/naming a user. One mark for a use. One mark for expansion.</td>
<td></td>
</tr>
<tr>
<td><strong>Example answer</strong></td>
<td>My user is Katy Bedford, (1) she will use the solution to update advertising material (1) such as menus. (1)</td>
<td></td>
</tr>
<tr>
<td><strong>Area of the specification and AOs this question covers</strong></td>
<td>3.1.2, AO2.1.</td>
<td></td>
</tr>
</tbody>
</table>
### 5 (b) Explain what is meant by an audience for an ICT solution. [2 marks]

**Purpose of the question**
Understanding and knowledge of what is meant by an audience for an ICT solution.

**Guidance for examiners on how to mark this question**
Up to 2 marks for an explanation of an audience.

**Example answer**
In the case of a retail website the audience will be the people who view the website, (1) they are the people the solution is aimed at. (1)

**Area of the specification and AOs this question covers**
3.1.2, AO2.1.

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### 5 (c) Explain four of your client requirements. [8 marks]

**Purpose of the question**
Application of knowledge and understanding of the candidate’s client requirements within the problem identification.

**Guidance for examiners on how to mark this question**
One mark for each requirement/expansion/example.

**Example answer**
One of my client requirements was to ensure the output was accurate. (1) This was required so that the customers were charged the correct amount. (1) Another was to put the company logo on the invoice (1) so that the company was easily identifiable. (1) The third requirement was to ensure the layout was logical (1) so that customers could understand the output. (1) The fourth requirement was to use validation and/or verification (1) to ensure data entry was robust. (1)

**Area of the specification and AOs this question covers**
3.1.2, AO2.1.
<table>
<thead>
<tr>
<th>5 (d)</th>
<th>Explain how your testing ensured that you met your client requirements successfully.</th>
<th>[9 marks]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purpose of the question</strong></td>
<td>Application of knowledge and understanding of the candidate’s testing of their ICT-related solutions in the Sample Work.</td>
<td></td>
</tr>
<tr>
<td><strong>Guidance for examiners on how to mark this question</strong></td>
<td>Description of test.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description of test data used.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reporting on the result.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max 6 if only 2 of the above are referenced.</td>
<td></td>
</tr>
<tr>
<td><strong>Example answer</strong></td>
<td>As my client had required that there were checks for robust data entry, I tested for validity of data in the range check on DOB. (1) I used normal data of 21/08/1999, (1) which I expected to be accepted, which it was. (1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Another client requirement was accuracy of output. I tested the invoice total calculation. (1) The data I used was £15, £12 and £25. (1) The actual result of £52 matched the expected result. (1) I put the same numbers into a calculator to check the addition was correct. (1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I took the final output to the client (1) to ask for confirmation that it matched the agreed design. (1)</td>
<td></td>
</tr>
<tr>
<td><strong>Area of the specification and AOs this question covers</strong></td>
<td>3.1.9 AO2.4.</td>
<td></td>
</tr>
</tbody>
</table>
The design of a solution should be detailed enough for a third party to be able to implement it.

**Figure 1** is an example of a poorly designed health club enrolment form. The developer has returned it to the designer, requesting that more detail be given to ensure that the exact design can be implemented.

As the designer, what additional notes could you include to ensure that the design is fit for purpose? [15 marks]

**Purpose of the question**
Application of knowledge and understanding of the design of solutions. Skills in the design of solutions.

**Guidance for examiners on how to mark this question**
Marks to be awarded for candidate stating what could be added to the design. Reference to font type/size, colours, additional fields, validation, uniformity and navigation, eg submit button.

**Guidance for examiners on how to mark this question**

**No credit worthy response** [0 marks]

**Low mark range** [1 – 5 marks]
Candidate shows little understanding and has only outlined basic design information, eg colours and font size/type

**Mid mark range** [6 - 10 marks]
Candidate has included added design information to enable most of the required design to be implemented.

**Good mark range** [11- 15 marks]
Candidate explains additional design information and has included at least 4 of the above.

**Area of the specification and AOs this question covers**
3.1.3, AO1.6, AO2.2.
You are planning to take a gap year in 2018. During this time you hope to travel to South America to work with a charity. You will need to plan this journey in advance. While you are away you will take lots of photographs, keep in touch with friends and family, write a blog and need to keep track of your finances.

Discuss the hardware and software that you will require.

### 7 [20 marks]

#### Purpose of the question

Understanding and application of the uses of ICT

#### Guidance for examiners on how to mark this question

- **No credit worthy response [0 marks]**
- **Low mark range [1 – 5 marks]**
  - For the lower marks in this range a candidate names at least one item of hardware and/or software they will require for the uses stated. For the higher marks in this range at least one of the uses stated in the question has been addressed, as well as reference to hardware and software.
  
  The candidate has used a form and style of writing that is barely appropriate to its purpose. The candidate has expressed simple ideas clearly, but may be imprecise and awkward in dealing with complex or subtle concepts. Information or arguments may be of doubtful relevance or be obscurely presented. Errors in spelling, punctuation and grammar may be noticeable and intrusive to understanding, suggesting weaknesses in these areas. Text is barely legible.

- **Mid mark range [6 - 10 marks]**
  
  Candidate shows some understanding of the hardware and software they will require for the uses stated. For the lower marks in this band a candidate may just list the hardware and software required for at least two uses stated in the question. For the higher marks in the band a candidate will give more detail of the hardware and software.
  
  Meaning is nearly always clear. The candidate has, in the main, used a form and style of writing, which is appropriate for its purpose, with some lapses. The candidate has expressed simple ideas clearly and reasonably fluently. Candidate has used sentences and paragraphs. Information or arguments are generally relevant. There may be some errors of spelling, punctuation and grammar. Text is legible.

- **Good mark range [11 - 15 marks]**
  
  Candidate shows a good understanding of the hardware and software, giving examples of both that they will require for the uses stated. For the higher marks in this band a candidate will have addressed at least three of the uses stated in the question, with some explanation.
Some specialist vocabulary used has been explained. Meaning is clear. The candidate has, in the main, used a form and style of writing, which is appropriate for its purpose; with occasional lapses. The candidate has expressed moderately complex ideas clearly and reasonably fluently. Candidate has used well-linked sentences and paragraphs. Information or arguments are generally relevant and well structured. There may be occasional errors of spelling, punctuation and grammar. Text is legible.

**High mark range [16 - 20 marks]**

Candidate discusses the hardware and software they will require for the uses stated. All uses stated in the question have been addressed. Examples in context have been used.

Any specialist vocabulary used has been explained. Meaning is clear. The candidate has selected and used a form and style of writing appropriate to purpose and has expressed complex ideas clearly and fluently. Sentences and paragraphs follow on from one another clearly and coherently. There are few, if any, errors of spelling, punctuation and grammar. Text is legible.

**Area of the specification and AOs this question covers**

3.1.4, 3.1.6, 3.1.7, 3.1.8 AO1.2, AO1.5.