# INFORMATION AND COMMUNICATION TECHNOLOGY 0417/31

Paper 3 Practical Test B **March 2018**

MARK SCHEME

Maximum Mark: 80

**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.

Cambridge International is publishing the mark schemes for the March 2018 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

This document consists of **11** 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.

**Evidence 1**

Brackets have highest priority so are calculated first
Exponents/indices have second priority (powers and roots)
Division and multiplication are next
Last are addition and subtraction

4 marks

**Row 1**
Large scripting font approx. 4· height of row 2     1
Cells A1–C1 merged and right aligned     1
**Rows 2, 4, 11 and 18**
Cells in columns A to C merged and centre aligned     1
Sans-serif, white font     1
Black background     1
**Column A**
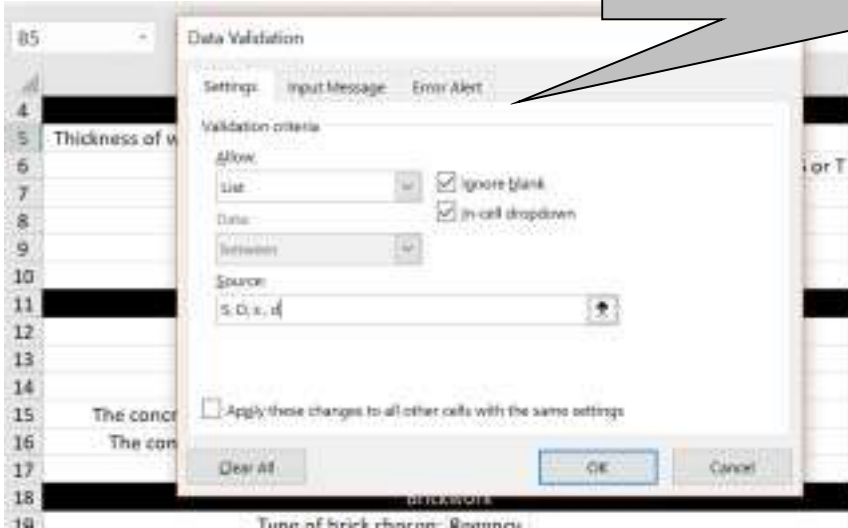All unmerged cells right aligned     1
**Sheet**
Cells A1:C26 fully visible incl row and col headings     1

**Evidence 2**

| | A | B | C |
|---|---|---|---|
| 1 | | Bobby's Bricks | |
| 2 | | Cost calculator for freestanding brick walls | |
| 3 | | | |
| 4 | | Data entry | |
| 5 | Thickness of wall - single skin or double skin: | | Please enter S or D |
| 6 | Code for the type of soil: | | Please enter soil code, B, C, G, S or T |
| 7 | Length of wall: | | Please enter length in metres |
| 8 | Height of wall: | | Please enter height in metres |
| 9 | Brick code for choice of bricks: | | Please enter brick code |
| 10 | | | |
| 11 | | Foundations - footings | |
| 12 | The footings will be: | | metres deep |
| 13 | The footings will be: | | metres wide |
| 14 | The footings will be: | | metres long |
| 15 | The concrete footings have a volume of: | | cubic metres |
| 16 | The concrete for the footings will cost: | | |
| 17 | | | |
| 18 | | Brickwork | |
| 19 | Type of brick chosen: | | |
| 20 | Does wall require piers: | | |
| 21 | Number of piers to be built: | | |
| 22 | Number of bricks per course: | | |
| 23 | Number of courses: | | |
| 24 | You will need to buy: | | bricks |
| 25 | Number of packs of bricks required: | | |
| 26 | Cost of bricks: | | |

**Evidence 3**

| Validation rule added to cell B5 | 1 |
| Restricted to S or D or s or d | 1 |

**Evidence 4**

| Validation rule | |
| Restricted to list contained in E4 to E8 | 1 |

**Evidence 5**

4 from:
Image has similar background to logo so is consistent in style
Background fits context of page/type of business
Image is distorted, too narrow compared to Logo image/table cell so needs to be stretched
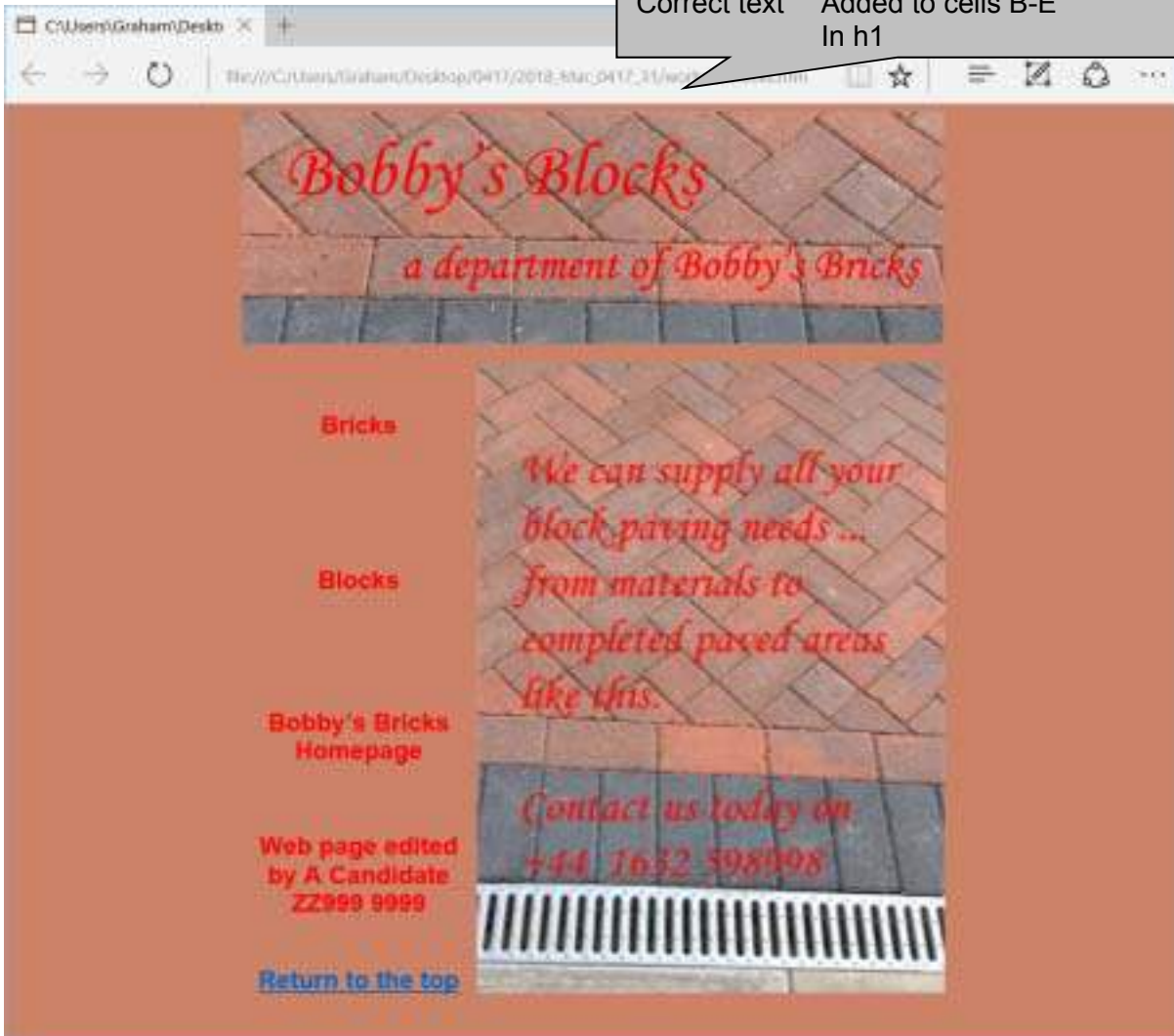Good contrast between background and text so no change/Poor contrast between background and text …
… text needs to be a darker background colours needs changing
Font style/colour matches the logo/corporate house style
Loss of text and image quality due to resizing

**Evidence 6**

| Browser view | In browser with no letters vis | 1 |
| Table/cell | borders not visible | 1 |
| | Centre aligned in window | 1 |
| Top cell | BlockLogo.jpg | 1 |
| Right cell | BlockImage.jpg | 1 |
| Correct text | Added to cells B-E | 1 |
| | In h1 | 1 |



**Evidence 7**

```
<!DOCTYPE html>
<html>
 <head>
  <link rel="stylesheet" type="text/css" href="BBlocks.css">
  <title>Bobby's blocks</title>
 </head>
 <body>
   <a id="top"></a>
   <table style="margin-left:auto; margin-right:auto;">
```

Head section
Stylesheet   BBlocks.css attached      1

Anchor top    Placed before table        1

| | | |
|---|---|---|
| Top row | Set to 300px high | 1 |

```
<tr style="height:300px">
```

| | | |
|---|---|---|
| Top cell | Width set to 900px | 1 |
| | colspan = 2 | 1 |

```
    <td style="width:900px" colspan="2"><img src="BlockLogo.jpg"
alt="Image of Bobby's Blocks Logo">
    </td>
    </tr>
```

| | | |
|---|---|---|
| Rows 2-4 | Height set to 200px | 1 |
| Rows 2-5 | Left cell width set to 300px | 1 |

```
    <tr style="height:200px">
    <td style="width:300px"><h1>Bricks</h1>
    </td>
```

| | | |
|---|---|---|
| Row 2 | Right cell 600 wide | 1 |
| | Right cell rowspan set to 4 | 1 |

```
    <td rowspan=4 style="width:600px"><img src="BlockImage.jpg" alt="Image
of block paving with text" style="width:600px; height:810px">
    </td>
    </tr>
```

| | | |
|---|---|---|
| BlockImage | Width 600 and height 810 | 1 |

```
    <tr style="height:200px">
    <td style="width:300px"><h1>Blocks</h1>
    </td>
    </tr>


    <tr style="height:200px">
    <td style="width:300px"><h1>Bobby's Bricks Homepage</h1>
    </td>
    </tr>
```

| | | |
|---|---|---|
| Row 5 | Height set to 210px | 1 |

```
    <tr style="height:210px">
    <td style="width:300px"><h1>Web page edited by A Candidate ZZ999
9999</h1><br><h1><a href="#top">Return to the top</a></h1>
    </td>
    </tr>
```

| | | |
|---|---|---|
| Hyperlink | From correct text | 1 |
| | to href="#top" | 1 |

```
    </table>
  </body>
</html>
```

**Evidence 8**

```
body        { background-color: #cc8266}
h1          { font-family: "Arial",sans-serif; text-align: center;
              color: #ff0000;}
table,td    { border-collapse: collapse; border-style:none;}
```

Header    Auto file name and path in centre    1

D:\CIE\0417\2018\2018_Mar_0417_31\worked\m1831calculator_worked.xlsx

| B12 | =VLOOKUP ( ) or LOOKUP ( ) | 1 |
| | B6 | 1 |
| | E4:H8 or named range (if evidence shown) | 1 |
| | ,4 | 1 |

| B13 | =VLOOKUP(B6, …) or LOOKUP (B6, …) | 1 |
| | E4:G8 or E4:H8 or named range | 1 |
| | ,3 | 1 |

| B14 | =B7+B13 | 1 |
| | -0.1 | 1 |

| B15 | =B12*B13*B14 | 1 |

| B16 | =B15*120 | 1 |

**Spreadsheet column A (partial):**

|  | A |
|---|---|
| 1 | |
| 2 | Cost calculator for freestandi... |
| 3 | |
| 4 | Data |
| 5 | Thickness of wall – single skin or double skin: S |
| 6 | Code for the type of soil: B |
| 7 | Length of wall: 4 |
| 8 | Height of wall: 0.6 |
| 9 | Brick code for choice of bricks: R |
| 10 | |
| 11 | Foundations - footings |
| 12 | The footings will be: =VLOOKUP(B6,E4:H8,4,FALSE) |
| 13 | The footings will be: =VLOOKUP(B6,E4:H8,3,FALSE) |
| 14 | The footings will be: =B7+B13-0.1 |
| 15 | The volume of concrete needed will be: =B12*B13*B14 |
| 16 | The concrete for the footings will cost: =B15*120 |
| 17 | |
| 18 | Brickwork |
| 19 | Type of brick chosen: =VLOOKUP(B9,'D:\CIE\0417\2018\2018_Mar_0417_31\worked\[m1831bricks.csv]m1831bricks'!$A$2:$B$20,2,FALSE) |
| 20 | Does wall require piers: =IF(AND(UPPER(B5)="S",B7>1.2,B8>0.725),"Yes","No") |
| 21 | Number of piers to be built: =IF(B20="Yes",2+INT(B7/1.2),0) |
| 22 | Number of bricks per course: =ROUNDUP(B7/0.225,0) |
| 23 | Number of courses: =ROUNDUP(B8/0.066,0) |
| 24 | You will need to buy: =ROUNDUP(1.1*IF(UPPER(B5)="S",...B23+B23*B21.2*B22*B23),0) |
| 25 | Number of packs of bricks required: =ROUNDUP(B24/390,0) |
| 26 | Cost of bricks: =B25*VLOOKUP(B9,'D:\CIE\0417\2...Mar_0417_31\worked\[m1831bricks.csv]m... |

| B19 | VLOOKUP or LOOKUP used | 1 |
| | Reference to cell B9 (brick code) | 1 |
| | Correct range of data from the file/sheet for code | 1 |
| | Correct return column | 1 |
| | False parameter or sorted data in m1831bricks | 1 |

| B20 | =IF( ) | 1 |
| | AND( with three conditions ) | 1 |
| | UPPER(B5) ="S" | 1 |
| | ,B7>1.2 | 1 |
| | ,B8>0.725 | 1 |
| | ,"Yes" | 1 |
| | ,"No" | 1 |

C:\Users\Graham\Desktop\2018_Mar_0417_31\worked\m1831_ZZ999_9999.xlsx

| | A | B | C |
|---|---|---|---|
| 1 | | *Bobby's Bricks* | |
| 2 | | **Cost calculator for freestanding brick walls** | |
| 3 | | | |
| 4 | | **Data entry** | |
| 5 | Thickness of wall - single skin or double skin: | S | ode, B, C, G, S or T |
| 6 | Code for the type of soil: | B | |
| 7 | Length of wall: | 4 | in metres |
| 8 | Height of wall: | 0.6 | t in metres |
| 9 | Brick code for choice of bricks: | R | code |
| 10 | | | |
| 11 | | **Foundations - fo** | |
| 12 | The footings will be: | =VLOOKUP(B6,E4:H8,4,FALSE) | metres deep |
| 13 | The footings will be: | =VLOOKUP(B6,E4:H8,3,FALSE) | metres wide |
| 14 | The footings will be: | =B7+B13-0.1 | metres long |
| 15 | The volume of concrete needed will be: | =B12*B13*B14 | cubic metres |
| 16 | The concrete for the footings will cost: | =B15*120 | |
| 17 | | | |
| 18 | | **Brickwork** | |
| 19 | Type of brick chosen: | =VLOOKUP(B9,'C:\Users\Graham\Desktop\ _Mar_0417_31\worked\[m1831bricks.csv]m  _B20,2,FALSE) | |
| 20 | Does wall require piers: | =IF(AND(UPPER(B5)="S",B7>1.2,B8>0.7 ),"Yes","No") | |
| 21 | Number of piers to be built: | =IF(B20="Yes",2+INT(B7/1.2),0) | |
| 22 | Number of bricks per course: | =ROUNDUP(B7/0.225,0) | |
| 23 | Number of courses: | =ROUNDUP(B8/0.066,0) | |
| 24 | You will need to buy: | =ROUNDUP(1.1*IF(UPPER(B5)="S",B22*B23+B23*B21,2*B22*B23),0) | bricks |
| 25 | Number of packs of bricks required: | =ROUNDUP(B24/390,0) | |
| 26 | Cost of bricks: | =B25*VLOOKUP(B9,'C:\Users\Graham\Desktop\2018_Mar_0417_31\worked | |

| B21 | =IF(B20="Yes" …) | 1 |
|---|---|---|
| | ,2+INT( … ) or   2+ROUNDDOWN ( … ) | 1 |
| | (B7/1.2) | 1 |
| | ,0 | 1 |

| B22 | =ROUNDUP(B7/0.225, 0) | 1 |
|---|---|---|

| B23 | =ROUNDUP(B8/0.066,0) | 1 |
|---|---|---|

| B24 | =ROUNDUP(… ,0) | 1 |
|---|---|---|
| | 1.1* | 1 |
| | IF(UPPER(B5)="S" | 1 |
| | ,B22*B23+B23*B21 | 1 |
| | ,2*B22*B23) | 1 |

       

| B25 | =ROUNDUP(B24/390,0) | 1 |

| | | Brickwork | |
|---|---|---|---|
| 18 | | Brickwork | |
| 19 | Type of brick chosen: | =VLOOKUP(B9,'C:\Users\Graham\Desktop\2018_Mar_0417_31\worked\[m1831brick... ...s'!$A$2:$B$20,2,FALSE) | |
| 20 | Does wall require piers: | =IF(AND(UPPER(B5)="S",B7>1.2,B8>0.725),"Yes","No") | |
| 21 | Number of piers to be built: | =IF(B20="Yes",2+INT(B7/1.2),0) | |
| 22 | Number of bricks per course: | =ROUNDUP(B7/0.225,0) | |
| 23 | Number of courses: | =ROUNDUP(B8/0.066,0) | |
| 24 | You will need to buy: | =ROUNDUP(1.1*IF(UPPER(B5)="S",B22*B23+B23*B21,2*B22*B23),0) | bricks |
| 25 | Number of packs of bricks required: | =ROUNDUP(B24/390,0) | |
| 26 | Cost of bricks: | =B25*VLOOKUP(B9,'C:\Users\Graham\Desktop\2018_Mar_0417_31\worked\[m1831bricks.csv]m1831bricks'!$A$2:$F$20,6,FALSE) | |

| B26 | =B25* | 1 |
| | VLOOKUP(B9,m1831bricks.csv!$A$2:$F$20,6,FALSE) | 1 |

| Footer | Candidate details on right | 1 |

| Correct cells with formulae, landscape, row and column headings and printout fully visible | 1 |

A Candidate ZZ999 9999

|   | A | B | C |
|---|---|---|---|
| 1 | *Bobby's Bricks* | | |
| 2 | Cost calculator for freestanding brick walls | | |
| 3 | | | |
| 4 | Data entry | | |
| 5 | Thickness of wall - single skin or double skin: | S | Please enter S or D |
| 6 | Code for the type of soil: | B | Please enter soil code, B, C, G, S or T |
| 7 | Length of wall: | 4 | Please enter length in metres |
| 8 | Height of wall: | 0.6 | Please enter height in metres |
| 9 | Brick code for choice of bricks: | R | Please enter brick code |
| 10 | | | |
| 11 | Foundations - footings | | |
| 12 | The footings will be: | 0.5 | metres deep |
| 13 | The footings will be: | 0.6 | metres wide |
| 14 | The footings will be: | 4.5 | metres long |
| 15 | The volume of concrete needed will be: | 1.35 | cubic metres |
| 16 | The concrete for the footings will cost: | £162.00 | |
| 17 | | | |
| 18 | Brickwork | | |
| 19 | Type of brick chosen: | Regency | |
| 20 | Does wall require piers: | No | |
| 21 | Number of piers to be built: | 0 | |
| 22 | Number of bricks per course: | 18 | |
| 23 | Number of courses: | 10 | |
| 24 | You will need to buy: | 198 | bricks |
| 25 | Number of packs of bricks required: | 1 | |
| 26 | Cost of bricks: | £414.00 | |

Sterling and 2dp in cells B16 and B26     1
Data as shown, single page, fully visible     1