



INFORMATION AND COMMUNICATION TECHNOLOGY

0417/12

Paper 1 Written Paper

March 2017

MARK SCHEME

Maximum Mark: 100

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 will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the March 2017 series for most Cambridge IGCSE[®], Cambridge International A and AS Level components and some Cambridge O Level components.

| Question | Answer | Marks |
|----------|-------------------------------------|-------|
| 1 | (a) a bar code reader | 1 |
| | (b) a microphone | 1 |
| | (c) a magnetic ink character reader | 1 |
| | (d) a retina scanner | 1 |

| Question | Answer | Marks | | | | | | | | | | | | | | | |
|--|--|------------------------|------------------------|------------------------|----------------------|---|--|--------------------|--|---|-----------|--|---|---------------|--|---|---|
| 2 | <table border="1"> <thead> <tr> <th></th> <th>internal memory (✓)</th> <th>backing storage (✓)</th> </tr> </thead> <tbody> <tr> <td>Random Access Memory</td> <td>✓</td> <td></td> </tr> <tr> <td>Portable hard disk</td> <td></td> <td>✓</td> </tr> <tr> <td>Pen drive</td> <td></td> <td>✓</td> </tr> <tr> <td>Magnetic tape</td> <td></td> <td>✓</td> </tr> </tbody> </table> | | internal memory (✓) | backing storage (✓) | Random Access Memory | ✓ | | Portable hard disk | | ✓ | Pen drive | | ✓ | Magnetic tape | | ✓ | 2 |
| | | internal memory (✓) | backing storage (✓) | | | | | | | | | | | | | | |
| | Random Access Memory | ✓ | | | | | | | | | | | | | | | |
| | Portable hard disk | | ✓ | | | | | | | | | | | | | | |
| | Pen drive | | ✓ | | | | | | | | | | | | | | |
| Magnetic tape | | ✓ | | | | | | | | | | | | | | | |
| 4 correct answers – 2 marks | | | | | | | | | | | | | | | | | |
| 2 or 3 correct answers – 1 mark | | | | | | | | | | | | | | | | | |
| 0 or 1 correct – 0 marks | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

| Question | Answer | Marks | | | | | | | | | | | | | | | |
|---|---|-------------|--------------|--------------|------------------------------|--|---|--|---|--|-----------------------------------|--|---|---|---|--|---|
| 3 | <table border="1"> <thead> <tr> <th></th> <th>true (✓)</th> <th>false (✓)</th> </tr> </thead> <tbody> <tr> <td>A hub is a central computer.</td> <td></td> <td>✓</td> </tr> <tr> <td>A router connects a LAN to the Internet.</td> <td>✓</td> <td></td> </tr> <tr> <td>A bridge connects a WAN to a LAN.</td> <td></td> <td>✓</td> </tr> <tr> <td>A switch connects computers in a network.</td> <td>✓</td> <td></td> </tr> </tbody> </table> | | true (✓) | false (✓) | A hub is a central computer. | | ✓ | A router connects a LAN to the Internet. | ✓ | | A bridge connects a WAN to a LAN. | | ✓ | A switch connects computers in a network. | ✓ | | 2 |
| | | true (✓) | false (✓) | | | | | | | | | | | | | | |
| | A hub is a central computer. | | ✓ | | | | | | | | | | | | | | |
| | A router connects a LAN to the Internet. | ✓ | | | | | | | | | | | | | | | |
| | A bridge connects a WAN to a LAN. | | ✓ | | | | | | | | | | | | | | |
| A switch connects computers in a network. | ✓ | | | | | | | | | | | | | | | | |
| 4 correct answers – 2 marks | | | | | | | | | | | | | | | | | |
| 2 or 3 correct answers – 1 mark | | | | | | | | | | | | | | | | | |
| 0 or 1 correct – 0 marks | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

| Question | Answer | Marks |
|----------|---------------------|-------|
| 4 | Last_order_received | 1 |
| | Food_type | 1 |
| | Re-order | 1 |
| | Packs_in_stock | 1 |

| Question | Answer | Marks |
|----------|--|----------|
| 5 | Any two from: Secure the wireless router/network with a strong password Do not broadcast the wifi security key/SSID Enable WPA encryption Disable remote administration to the router Enable user management Change from the default SSID Use MAC address filtering/change the router IP address Use wireless security software | 2 |

| Question | Answer | Marks |
|----------|---|----------|
| 6(a) | Any three from: Spam email may contain viruses/spyware/malware/key loggers... ...an example of what viruses/spyware/malware/key loggers/pharming can do If you open and reply to spam emails then the spammer knows the email address is active Spam can fill up the inbox | 3 |
| 6(b) | Any four from: Check the name of sender matches the content of the email Check any URL link matches the content of the email Might contain grammar/spelling mistakes Check plain text Check the message is not an image Check if the message is asking for personal information Might contain <u>unexpected</u> attachments Urgent/too good to be true Not address the user by name/generic name used Might be in your SPAM emails/alerted by service provider | 4 |

| Question | Answer | Marks |
|----------|---|----------|
| 7 | Any three from: Private/confidential data stays within a company/organisation/school To store relevant/up to date information about the organisation available to workers To facilitate communication/collaboration between workers/students/teachers Make it easier to access company specific applications. Restrict access to certain sites of the internet/regulate access to the internet Restrict access for certain employees | 3 |

| Question | Answer | Marks |
|----------|---|-------|
| 8 | <p>Any five from:</p> <p>Enter data into/use the interactive user interface</p> <p>Questions are asked about the car engine fault</p> <p>The user answers the questions/Yes or No answers to the questions are typed in</p> <p>Further questions are asked based on the previous answers</p> <p>The inference engine compares data</p> <p>Compares data with that held in the knowledge base...</p> <p>...using the rules base/set of rules...</p> <p>...until it finds a match/matches found</p> <p>System suggests probabilities/possible solutions</p> <p>The explanation system explains how the solutions were arrived at</p> | 5 |

| Question | Answer | Marks |
|----------|--|-------|
| 9(a) | <p>Any two from:</p> <p>Replicates itself and can fill the computer's memory/hard disc with unwanted data</p> <p>Can communicate with other systems</p> <p>Causes computer to crash</p> <p>It can delete/corrupt data</p> <p>Causes the computer operations/system/processes to run slowly/become unusable</p> <p>Makes software/OS unusable</p> <p>Can corrupt/erase contents of hard disc</p> | 2 |
| 9(b) | <p>Any three from:</p> <p>Run up to date anti-virus software/Install anti-virus software</p> <p>Do not download files/attachments from email addresses that you do not recognise</p> <p>Do not download files/games/software from untrusted/unfamiliar website</p> <p>Scan all emails before opening</p> <p>Check/scan attachments to emails for viruses</p> <p>Avoid opening spam emails</p> | 3 |

| Question | Answer | Marks |
|----------|---|-------|
| 10(a) | <p>Any four from:</p> <p>Bank/city/branch code/Acc Number for RBI/clearing centre/IFSC code</p> <p>Cheque number/Unique coding number/UCN/transaction code</p> <p>Account number</p> <p>Amount</p> <p>Account type (current/deposit)</p> <p>Account holder's name/payee/drawer</p> <p>Date written on the cheque</p> | 4 |

| Question | Answer | Marks |
|----------|--|-------|
| 10(b) | <p>Any three from:</p> <p>Using standard paper cheques The cheques are sent to the clearing bank/centre The amount is read using OCR The city code/bank code/branch code/sort code/cheque number/account number is read using MICR Sort the cheques into bank code order The cheque is scanned using OCR and stored Amount is written onto the cheque using magnetic ink</p> <p>or</p> <p>Using digitally image/scanned cheques The cheques are sent to the bank clearing system/centre from a smartphone/ATM machine Details of the amount and payee are sent electronically The sort code/account number/unique coding number/UCN is encoded as text The cheque details and encoded MICR are read using OCR and stored</p> <p>For both methods Check signature correct/cheque correct Date of cheque is checked Amount is checked Payer recognised</p> | 3 |

| Question | Answer | Marks |
|----------|--|-------|
| 11(a) | <p>1 mark for each:</p> <p>Insert a table Select/Enter 4 columns and 5 rows</p> <p>Any three from:</p> <p>Highlight/select the top row and click on merge cells type in heading Populations of Indian Cities highlight the heading/text/first row and click on bold highlight the heading/text/first row and click centre text type in subheading(s) highlight the sub-headings and click on italics Type in cities in appropriate cells Select borders</p> | 5 |
| 11(b) | <p>Any two from:</p> <p>Right click in the row/table Click insert rows Draw the rows Select the table and click layout tab Tab on the last row</p> | 2 |

| Question | Answer | Marks |
|----------|--|----------|
| 12(a) | All elements (they must be correct) - 1 mark Any three from: Appropriate use of header/footer Size of headings and sub-headings Size of logo box/position of the logo/watermark Use of annotation Leave sufficient space for presentation content/images – 1 mark | 5 |
| 12(b) | Any three from: Data/multimedia projector Speakers Monitor Printer | 3 |

| Question | Answer | Marks |
|----------|---|----------|
| 13(a) | SUMIF(B\$3:H\$3,B\$3,B4:H4) or SUMIF(B\$3:H\$3,E\$3,B4:H4) or SUMIF(B\$3:H\$3,F\$3,B4:H4) 1 mark for SUMIF() 1 mark for B3:H3, 1 mark for B\$3 or E\$3 or F\$3 1 mark for ,B4:H4 | 4 |
| 13(b) | AVERAGE(B4:H4) 1 mark for AVERAGE() 1 mark for B4:H4 | 2 |
| 13(c) | Any two from: Click on the average mark Select increase/decrease decimal Keep until you reach 2 decimal places or Select the average mark Format cell Select 2 decimal places | 2 |
| 13(d) | VLOOKUP(I4,\$N\$4:\$O\$11,2,TRUE) 1 mark VLOOKUP() 1 mark for I4, N4:O11, 1 mark for 2, TRUE 1 mark for correct use of \$ | 4 |

| Question | Answer | Marks |
|----------|---|----------|
| 14(a) | Designed to help programmers/systems analysts – 1 mark Any one from: ...to improve a system ...to maintain a system ...to upgrade a system | 2 |
| 14(b) | Any two from: To help the user understand how the new system works To help the user to learn how to use the new system Technical documentation may be too complex for the user to understand To help the user deal with problems | 2 |

| Question | Answer | Marks |
|----------|--|----------|
| 15 | One mark for creating a query/report Two from: [Max_temp]-[Min_temp] 1 mark for [Max_temp]- 1 mark for [Min_temp] | 3 |

| Question | Answer | Marks |
|----------|--|----------|
| 16(a) | Any two from: Tablets can be customised to individual needs Easier to change the percentages of drug in the tablet Mass produced or small batches therefore reducing waste Created as needed therefore reducing waste Patient gets the drugs quicker | 2 |
| 16(b) | Any two from: Cost of buying the printer is expensive Materials are expensive Can be used for illegal production of drugs There are not many 3D printers created to date to do this | 2 |

| Question | Answer | Marks |
|----------|--|----------|
| 17(a) | <p>Any six from</p> <p>Never open/download attachments/links from people you do not know... ...as they may contain viruses/allows others to know the email address is live</p> <p>Never open emails from unknown sources... ...as they may contain viruses</p> <p>Scan all emails using an up to date anti virus... ...as new viruses are always being created</p> <p>Keep the number of contacts to a minimum... ...as some viruses send emails to all names in your contacts list</p> <p>Do not use auto reply to emails... ...allows others to know the email address is live</p> <p>As the email may be sent to people who should not see it... ...do not use reply all</p> <p>...check names that you are replying to</p> <p>When replying always use a subject... ...as people may not open emails without this as they think they are spam</p> <p>When replying remove extra information that was sent... ...to stop others seeing things they shouldn't</p> <p>Watch sarcasm as it is not conveyed on the messaging</p> <p>Use netiquette</p> <p>Use a spam filter... ...clear SPAM regularly</p> <p>Do not reply to spam emails... ...as the spammer can see that your email address is live</p> <p>Do not give personal details in the email</p> <p>Do not reply to emails from unknown sources</p> | 6 |
| 17(b) | <p>Any two from, for example</p> <p>Family name</p> <p>Gender</p> <p>Nationality</p> <p>Religion</p> <p>Address</p> <p>Phone number</p> <p>date of birth</p> <p>Email address</p> <p>Bank details</p> <p>Medical history</p> <p>Ethnic origin</p> <p>Membership of a political party</p> <p>Criminal activity</p> <p>Membership of a trade union</p> | 2 |

| Question | Answer | Marks |
|----------|---|----------|
| 17(c) | Any five from Use of <u>strong</u> passwords Regularly changing passwords Not replying to emails where personal data is asked for... ...unless you are sure of the recipient Use of different passwords for different emails/logins On social media not giving full name, picture etc. Setting social media to private Use an alias on online gaming Only send personal data on protected sites using https Using encryption techniques/TLS/SSL/Digital certificates | 5 |

| Question | Answer | Marks |
|----------|---|-------|
| 18 | <p>To be marked as a level of response:</p> <p>Level 3 (7–8 marks): Candidates will address both aspects of the question and discuss/consider different benefits and drawbacks. The issues raised will be justified. There will be a reasoned conclusion. The information will be relevant, clear, organised and presented in a structured and coherent format.</p> <p>Level 2 (4–6 marks): Candidates will address both aspects of the question and discuss/consider different benefits and drawbacks although development of some of the points will be limited to one side of the argument. There will be a conclusion. For the most part the information will be relevant and presented in a structured and coherent format.</p> <p>Level 1 (1–3 marks): Candidates may only address one side of the argument, and give basic benefits and drawbacks. Answers may be simplistic with little or no relevance.</p> <p>Level 0 (0 marks) Response with no valid content.</p> <p><i>Answers may make reference to e.g.:</i></p> <p>benefits of smart technology Smart technology devices can be used to turn on devices remotely.... ...if you are coming home you can turn on cookers ...you can come home to a warm house by turning on central heating Smart fridges can analyse food taken out of fridge so you can get a healthy diet ...also re-orders stock automatically Smart washing machines stop washes if incorrect materials present in the wash it new materials are produced then the washing machine can analyse the materials and tell you the correct dose of powder if you want to watch up to date films then then TV can connect to the internet</p> <p>drawbacks to smart technology Over reliance on technology; if the device breaks down then it is difficult to use alternatives If the device breaks it is more difficult to repair Personal data can easily be hacked through internet connected devices ...personal data easily found ...wifi key easily found If controller/smart phone lost/stolen the devices may not work in the home New technology is expensive Too many gadgets reliance on internet connection.</p> | 8 |