# OCR
## Oxford Cambridge and RSA

# Cambridge National

# ICT

Unit **R001/01:** Understanding Computer Systems

Level 1/2 Cambridge National Certificate/Award/Diploma in ICT

# Mark Scheme for January 2019

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

| Annotation | Meaning of annotation |
|---|---|
| **BP** | Blank page |
| **VG** | Vague |
| ✔ | Tick |
| **SEEN** | Noted but no credit given |
| **?** | Unclear |
| **REP** | Repeat |
| **BOD** | Benefit of doubt |
| ✖ | Cross |
| **DEV** | Development |
| **EG** | Example/Reference |
| **K** | Knowledge |
| **L1** | Level 1 |
| **L2** | Level 2 |
| **L3** | Level 3 |

| Question | | | Answer/Indicative content | Mark | Guidance |
|---|---|---|---|---|---|
| 1 | (a) | | Keyboard — To capture images<br><br>Digital camera — To create digital copies<br><br>Scanner — To add text<br><br>(Keyboard → To add text; Digital camera → To capture images; Scanner → To create digital copies) | 3 | Only award pairings where neither element of the pair has been already used. |
| 1 | (b) | | ONE mark available:<br>• Desktop publishing/DTP/Publishing (1)<br>• Word Processing (1) | 1 | Accept trade names but **ONLY software answers and NOT document types**<br>No other acceptable answers.<br>Consider only the first answer given |
| 1 | (c) | | Up to TWO marks for a full explanation of an advantage. e.g.<br>• Money is saved/physical space is saved (1) because there is no/reduced need to buy servers/computers to store/storage media (accept other reasonable examples) (1)<br>• (Almost) unlimited/large amount of storage (1) because storage is shared across many servers (1)<br>• Less to remember/worry about (1) because work is backed up by the Cloud provider (1)<br>• Available in different locations (**NOT "anywhere" unless clarified**) (1) because the Cloud is available wherever there is internet access (1) and so need for a physical device (1) or a physical meeting (1)<br>• Cloud is not device dependant (1) and so can be accessed from different types of device (1)<br>• No need to send to each manager individually (1) and so saves time (for Sami) (1) and documents received more quickly/at once (1)<br>• Document can be seen at once/faster distribution (1) rather than if posted (or other reason) (1) | 2 | Only consider **first** answer for this question.<br><br>Answers should be in the format of identify advantage (1) explanation (1)<br><br>Explanation may be WHY the advantage occurs **OR** WHY the advantage is a positive impact (why the advantage is an advantage)<br><br>ONE mark can be given for the advantage or the explanation (for example money is saved (1) OR There is no need to buy storage media)<br><br>DO NOT accept answers to do with ease of back up or state that the cloud is "easy to use" or "is available at all times". |

| Question | Answer/Indicative content | Mark | Guidance |
|---|---|---|---|
| **1** **(d)** | Up to TWO marks for a full explanation of a disadvantage.<br><br>e.g.<br><br>- Business can lose access to resources (1) if there is a technical issue (1)<br>- Not all areas are covered by the internet (1) therefore some areas of the country cannot access the Cloud (1)<br>- Lose control of potentially sensitive information (1) because it is held on machines owned by others (1)<br>- Cloud costs money to use (1) therefore have to pay for it (1)<br>- Internet is required to access cloud (1) therefore only available where there is coverage (1)<br>- Cloud is internet based and so more open to a cyber-attack (1) so greater chance of losing file (or other implication) (1)<br>- If connection is poor (1) will take time to open/download files (1) | **2** | Answers should be in the format of identify disadvantage (1) explanation of that disadvantage(1)<br><br>Must be a disadvantage of using the Cloud over other systems.<br><br>Please only accept answers within context of **work documents** being shared with a manager.  Therefore, suggestions such as files could be deleted should be marked as wrong.<br><br>DNA – "could get hacked" |
| **1** **(e)** | ONE mark available:<br><br>- Monitor (1)<br>- (Television)/(LCD) screen/TV (1) | **1** | NO other acceptable answers.<br><br>Consider only the first answer given |

| Question | | | Answer/Indicative content | Mark | Guidance |
|---|---|---|---|---|---|
| 2 | (a) | | Up to FOUR marks available.<br><br>• <u>Barcode</u> scanner/reader (1)<br>• Data is held in spaces and bars (1)<br>• LED/laser shone onto the barcode (1)<br>• White reflects light/black absorbs/there is a reflection (1)<br>• Lines in the barcode are translated (1)<br>• into numbers or letters/code (1)<br>• numbers/data/code* is transferred to computer (1)<br>• each item (type) has its own number (1)<br>• database is searched  (for code)/data is sent to database (1)**<br>• number/data/code used to lookup/identity (name of) item (1) | 4 | Read whole answer and mark to the candidate's best advantage<br><br>**Start awarding marks from the point of the item having been scanned (so no mark for "it is scanned").**<br><br>*accept "**information**" here<br>**accept any variation of using a database to find the item |

| Question | | | Answer/Indicative | Marks | Guidance | |
|---|---|---|---|---|---|---|
| | | | | | **Mark** | **Levels of response** |
| **2** | **(b)** | | For an answer to be considered a comparison, there should be a point made about BOTH **automatic** and **manual** methods. A comparison may identify **similarities** OR **differences**.<br><br>**Points of comparison**:<br><br>• Ease of data entry (ease of use)<br>• Potential for error (accuracy)<br>• Time taken to enter details (Ease of use)<br>• Time taken to initially set up the system (ease of use)<br>• Purchase cost (cost)<br>• Need for training (ease of use)<br><br>For **ease of use** accept answers about customers being served more efficiently etc.<br><br>For **cost** accept answers which consider the cost versus the impact | 8 | 8 – L3 | All three areas used to compare both methods.<br>    • **Cost of system**<br>    • **Accuracy**<br>    • **Ease of use**<br>Each comparison is a description |
| | | | | | 7 – L3 | Two areas used to compare both methods, **one single** point made using the third method<br>**Each comparison is a description** |
| | | | | | 6 – L3 | Two areas used to compare both methods. No use made of the third area of consideration.<br>**Each comparison is a description** |
| | | | | | 5 – L2 | **One** descriptive comparison made<br><br>**OR**<br><br>**All three** areas of consideration used in the answer. Only **one** comparison made.<br>**Comparison is a statement**.<br><br>**OR**<br><br>**Two comparison** statements, only two areas used. |
| | | | | | 4 – L2 | **Two** areas of consideration used in the answer. Only **one** comparison made.<br>**Comparison is a statement**. |
| | | | | | 3 – L2 | Only one comparison made. No further areas mentioned<br>**Comparison is a statement** |
| | | | | | 2 – L1 | Two statements made but will not be a comparison (may be two points about one method, or two, unrelated points, made about each method). |
| | | | | | 1L1 | One statement made about either method. |
| | | | | | 0 | No work of merit. |

| Question | | | Answer/Indicative content | Mark | Guidance |
|---|---|---|---|---|---|
| **3** | **(a)** | | ONE mark available:<br><br>• Spreadsheet (1) | **1** | Whilst other types of software could be used to draw a line graph, including graphics packages, spreadsheet is clearly the most suitable. |
| **3** | **(b)** | | Up to FOUR marks available:<br><br>e.g.<br><br>• The sales for each shop are recorded every day (1)<br>• A (coloured) line is used to link all sales for one shop (1)<br>• Each shop has a separate line/different colour (1)<br>• If a line for one shop is above another one (1) then that shop is outselling the other one (1)<br>• The higher the line (1), the greater the sales/better performance (1) | **4** | Bullets 3 and 4 are the examples.<br><br>MAX 2 marks if no discussion of comparison of SHOPS (ie discuss ability to compare daily sales, sales increase, rather than shop by shop)<br><br>e.g.<br>The sales for each shop are recorded every day (1) and a line is used to link all sales for one shop (1). Each shop has a separate line (no mark awarded here as already awarded) and look for the higher line (1)<br><br>**This is NOT a question about what data can be used for, so do not award answer such as "Line graphs can compare how many people went into each shop"**<br><br>**Be wary of candidates who simply repeat the question.** |
| **3** | **(c)** | | <table><tr><td>**Chart item**</td><td>**Purpose of this item**</td></tr><tr><td>Title</td><td>• So that the subject/focus of the item is clear (1)<br>• So you know what it is about (1)</td></tr><tr><td>Legend</td><td>• So types of data can be identified (1)<br>• A visual key (1)<br>• To make the graph easier to understand (1)</td></tr><tr><td>Units on the x and y axis</td><td>• Shows the size/amounts/values (or equivalent) (1)<br>• For comparison (1) (may be an example – "to identify increases")</td></tr></table> | **3** | Consider only the first answer given in each box, however, be aware of answers that are not wrong, but not yet right – hence "name of the graph (not wrong) so shows what graph shows (1)"<br><br>Accept "to make the graph easier to understand/read/interpret" ONCE only. |

| Question | | | Answer/Indicative content | Mark | Guidance |
|---|---|---|---|---|---|
| 4 | | | Up to THREE marks:<br><br>• The web server is flooded/sent multiple (1) (with) requests/messages (1)<br>• The web server is sent requests/messages/signals (1) repeatedly (1)<br>• The server becomes overloaded (1) | 3 | Items from bullet points one and two may only be used elsewhere in the answer.<br><br>DO NOT award repetition of the question – no mark for "the server cannot deal with normal workload" etc.<br><br>DO NOT award:<br>• From multiple machines (This is a DDOS attack) |
| 5 | (a) | | Up to TWO marks available for a full description:<br><br>**One from**<br>**e.g.**<br>• Users can send/receive/send and receive data (1)<br>• Behaves as if the user is connected to the private network (1)<br>• Gives users access to functions/security of the private network (to which they are attaching) (1)<br>• Hides IP address (1)<br>• Encrypts data/signal (1)<br><br>**One from**<br>• A private network (1) that uses/connects across a public network (1)<br>• A secure network (1) that only allows workers from the firm/authorised users to access it (1)<br>• A secure network (1) to which only people who work in the business can get access (1) | 2 | |

| Question | | | Answer/Indicative content | Mark | Guidance |
|---|---|---|---|---|---|
| **5** | **(b)** | | If there is no benefit identified, you cannot award the explanation.<br><br>Up to THREE marks available for each benefit identified (first mark) and explained (2 marks)<br><br>e.g.<br><br>**Benefit**<br>• Able to send work to print on office printers (1)<br>**Explanation**<br>• Will not need to print off work when he gets back to the office (1) and so less to remember (1)<br>**Benefit**<br>• Able to save work on the office servers/access network from anywhere/home (1)<br>**Explanation**<br>• Can save files in one (central) location (1) so less likely to lose them/forget them when travelling/always available when away from office/can access them from anywhere (with internet access) (1)<br>**Benefit**<br>• Harder to hack his laptop/files are secure/ anonymity (1)<br>**Explanation**<br>• VPN hides his IP address (1) so individual/his machine cannot be targeted (1) | 6<br>(2 x 3) | **Mark the suggested benefit before considering the explanation.**<br><br>DO NOT treat access to resources as a "use once" answer.<br><br>**This must be a benefit to Jensen and not to the organisation, so do not award organisational impacts, such as restricted access to Internet etc. or that data is encrypted/more secure**<br><br>Candidate may identify different resources/facilities to which they have access and still be awarded marks. However, do not award repetition of explanations.<br><br>• Less to remember/won't forget are equivalent answers<br><br>• Less likely to lose them/better organised are equivalent answers<br><br>• Do not exist "it exists" type answers (such as , "it is on line") |

| Question | | | Answer/Indicative content | Mark | Guidance |
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| **5** | **(c)** | | Up to TWO marks available:<br>e.g.<br><br>• The VPN gives access to sensitive data/resources (in the office) (1) so access needs to be restricted (1)<br>• So that only people who work for the organisation/trusted users (1) can access the network (1)<br>• So outsiders (1)cannot access the network (1)<br>• It is a security measure (1) to control access (to the network)(1)<br>• People have to prove they are staff (1) as data held is sensitive/access is restricted to staff only (1) | **2** | ONE mark can be given for **any** understanding of restricted access, or the implication of outside users being able to access.<br><br>DNA – "for privacy" or "so it remains private"- TV. There must be something about controlling access to files etc or the implications of an open access network (including "anyone could access it otherwise")<br><br>For full marks, there must be an explanation of the why aspect – so an expansion stating why the reason is important. |
| **6** | **(a)** | | Up to TWO marks available for a full explanation:<br><br>e.g.<br><br>• Jensen may need to speak to his manager (1) because the laptop does not have voice communication (1)<br>• The smartphone is useful for 'off the cuff'/ad hoc/spontaneous tasks (1) because it is smaller/more portable/better suited to the circumstances (1)<br>• Jensen is in an area where there is no wi-fi (1) (so uses the phone) as it can make calls from more locations (1)<br>• Jensen may need a quick response (1) so talking means he can ask a direct question/get a quicker answer (1) | **2** | Do not award any answer which is based on the laptop being lost/unavailable/out of charge/switched off etc.<br><br>"Uses the phone" is in the question.<br><br>Answers should be in the structure:<br><br>Identify the situation<br><br>Explain why it is better<br><br>Answer MUST have a "situation". Where no situation, no marks may be awarded. <u>Work with the first situation given</u>.<br><br>**DO NOT accept "when he is in a meeting" without further explanation. This is unlikely to be acceptable, as a laptop would be taken to a meeting.**<br><br>**Do not accept "more secure"** |

| Question | | | Answer/Indicative content | Mark | Guidance |
|---|---|---|---|---|---|
| **6** | **(b)** | | Up to TWO marks available for a full explanation:<br><br>e.g.<br><br>- Jensen may need to use a larger screen to edit a file (1) and the Smartphone screen is too small (1)<br>- The laptop has greater storage (1) and so Jensen can save large files (1)<br>- The laptop has more powerful software (1) and so will be able to create more effective files/outcomes/projects (1)<br>- Bigger screen is useful for video conferencing (1) so that can see body language/clearer image (or other benefit) (1)<br>- Laptop has greater processing power (1) so better for sending <u>large files</u> (or other <u>specific</u> digital resources) (1)<br>- When he | 2 | Do not award any answer which is based on the Smartphone being broken/unavailable/out of charge/switched off etc.  The manager has a phone!!<br><br>Answers should be in the structure:<br><br>Identify the situation (first mark)<br><br>Explain why it is better (second mark)<br><br>Answer MUST have a "situation".  Where no situation, no marks may be awarded.  Work with the first situation.<br>**Remember that he is in a meeting with the customer** and **needs to contact his manager, so any mention of being in his office is incorrect.**<br><br>Answers must be in the context of the question and are to explore the converse of the previous question.<br><br>**DO NOT Accept answers to do with:**<br><br>- **battery power being greater on a laptop**<br>- **"when at home"** |

| Question | | | Answer/Indicative content | Mark | Guidance |
|---|---|---|---|---|---|
| 6 | (c) | | Up to TWO marks available for a full explanation.<br><br>Answers should be in the form of what should be done/not done (1) why this should be done (1)<br><br>e.g.<br>• Delete the email/ignore the complaint (1) plus expansion (1)<br>• Do not open the attachment (1) as it may include a virus (1)<br>• Contact the contact(1) using a <u>different</u> method (any method other than email (1) to check if the email is genuine (1)<br>• Do not reply to the email itself (1) as this could attract further contact (1) | 2 | Mark the whole answer before awarding.<br><br>This is NOT a list answer question, so please consider the whole response. However, for full marks, must be an explanation of why the action should be taken. |
| 7 | (a) | | Up to TWO marks for an explanation of an advantage.<br><br>**First mark** must be for the advantage, with **second mark** being an explanation of why it is an advantage.<br><br>e.g.<br><br>• There is a written record/dates are stored (etc) (1) so that Jensen can check/in case Jensen forgets/which Jensen would otherwise need to remember(1)<br>• A lot of details can be shared in an email/don't need to speak details (1) so is a more efficient/effective method (1) and avoids inaccuracies (1)<br>• The email is date stamped (1) so is proof of when the booking was made (1)<br>• Does not require both parties at the same time (1) so contact is able to reply when convenient (1) may not be able to answer call/having had time to check if they are free (1) | 2 | This may be an advantage to any stakeholder<br><br>This MUST be an advantage over the use of a phone conversation.<br><br>Do not accept:<br>• Can be done anywhere/sent from home<br>• Any reference to ease of use without a good explanation of why it is easier<br>• Any answers that claim that this method is faster or saves time<br>• Any claim that emails provide reminders<br>• Any claims about professionalism |

| Question | | | Answer/Indicative content | Mark | Guidance |
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| 7 | (b) | | One mark for any reasonable check. **Max 2**<br><br>e.g.<br>• Check on calendar to see if there is enough time for the meeting (1)<br>• Check length of the meeting (1)<br>• Confirm with Jensen that he is available/he does not have a meeting at that time (1)<br>• Check if there is sufficient travel time between meetings (1)<br>• Confirm that Jensen accepts the meeting (1)<br>• Confirm with Jensen that he is in the area (1) | 2 | **Jensen's availability covers all issues with direct clashes/holidays/days off etc. Availability covers having other meetings as well as it being a holiday or Jensen has other plans.** |
| 7 | (c) | | Up to TWO marks for a description of a way.<br><br>First mark must be for the method, with second mark being a feature/description of that method.<br><br>e.g.<br><br>• Sound (1st) a repetitive OR loud etc (1) beep/ring (1) from the speakers (1)<br>• Visual (1st) flashing message (1) on the screen (**NOT pop up – TV**) (1)<br>• Notification/reminder (1st) on the screen (NOT "on his phone") (1)<br>• Vibrate (1st) and a message on the screen (1) | 2 | Please note that an answer about a visual method could be a combination of any two of the three items given<br><br>Treat "set an alert" as TV<br><br>DNA – send him an email. Question is about immediate and timeous reminders<br><br>Send a reminder/alert - TV |

| Question | | | Answer/Indicative content | Mark | Guidance |
|---|---|---|---|---|---|
| 7 | (d) | | Up to TWO marks for a full explanation.<br><br>e.g.<br><br>• So that he has <u>more</u> warning of the appointment/more time to prepare (1) so that he is less likely to miss it/can make arrangements (may give examples)/is better organised/does not have to rush/can get ready in time/isn't late (1) | 2 | For full marks, candidate must state why the change has been made and why this is of benefit.<br><br>Please note that the second half of the answer are all one mark point.<br><br>**Therefore, can get ready in time, he isn't late and does not have to rush is one mark only.** |
| 8 | (a) | (i) | ONE from:<br><br>e.g.<br><br>• CD (1)<br>• SD card (1)<br>• DVD (1)<br>• (External) hard disk (1)<br>• Flash memory device (1)<br>• Cloud storage (1) | 1 | DO NOT accept "USB" in its own |

| Question | | | Answer/Indicative content | Mark | Guidance |
|---|---|---|---|---|---|
| 8 | (a) | (ii) | Up to TWO marks for a matched explanation of why the device is suitable.<br>For full marks, answer must give the reason and then state why the reason is important.<br>e.g.<br>CD<br>   • Cheap price for unit of storage (1) so that cost is not important/overall cost is reduced(1)<br>SD card<br>   • Not device dependant (1) and so can be used on multiple devices (1)<br>DVD<br>   • Large storage capacity/stores more than one album (1) so do not need to change when playing (1)<br>Hard disk<br>   • Large capacity/stores more than one album (1) so do not need to change when playing (1)<br>Flash memory device<br>   • Small device (1) so Jensen can keep it in his pocket (1)<br>Cloud storage<br>   • Unlimited/huge capacity (1) so that Jensen can store lots of music (1)<br>   • Secure (1) because has corporate security features (1) | 2 | This is 'follow through' so suitability MUST match the device mentioned in 8ai<br><br>Where no mark awarded for 8ai, you CAN NOT award a mark for this answer<br><br>**Do not accept capacity for CD** |
| 8 | (b) | | One from:<br><br>   • Copyright (1)<br>   • UK <u>Copyright</u>, Design and Patents act (1) | 1 | |

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