

**Cambridge National**

**ICT**

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

Cambridge National Level 1/2 Certificate

**Mark Scheme for January 2017**

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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.

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Question		Answer/Indicative content	Mark	Guidance
1	a	Printer	1	
1	b	ONE from <ul style="list-style-type: none"> <li>• Camera (1)</li> <li>• Scanner (1)</li> <li>• Web cam (1)</li> </ul>	1	DO NOT accept mobile phone/ipad/tablet
1	c	Up to FOUR marks for a full explanation of <b>benefits</b>  e.g. <ul style="list-style-type: none"> <li>• To show customers the food (1) as it would look (1) so that the customer knows (1) what the food will look like (1)</li> <li>• To attract customers (1) as the food looks more attractive (1)</li> <li>• Colour images look more realistic/appetising/eye catching (1) and so customers get a better impression (1) of the food (1) and make a better informed choice (1) so more likely to go to the restaurant (1)</li> <li>• Colour gives a more realistic image/colour images are more inviting (1) so better choices can be made/because they look like real food (1) whereas black and white images do not look like the food (1) and so choices may be affected (1)</li> </ul>	4	Do not award answers such as: <ul style="list-style-type: none"> <li>• Faster (without fully relevant expansion)</li> <li>• Easier at all</li> <li>• More professional at all.</li> </ul> <p>Answer may refer to benefits of colour over black and white or focus on disadvantages of black and white. However, a colour image is NOT easier to see than a black and white one.</p>
2	a	ONE mark: <ul style="list-style-type: none"> <li>• Wifi (1)</li> <li>• Bluetooth (1)</li> <li>• Wireless/wirelessly(1)</li> </ul>	1	

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2	b	<p>Up to TWO marks. First mark for advantage and second for explaining relevance.</p> <p>Answers may focus on marketing impact: e.g.</p> <ul style="list-style-type: none"> <li>• This creates a ‘buzz’ about the restaurant (1) and so increases interest (1)</li> </ul> <p>Answers may focus on general business impact e.g.</p> <ul style="list-style-type: none"> <li>• Orders will be received quicker in the kitchen (1) as the order does not have to be physically carried (1)</li> </ul> <p>Answers may focus on impact on costs and efficiency e.g.</p> <ul style="list-style-type: none"> <li>• Reduced labour costs (1) as do not need to employ as many waiting staff (1)</li> <li>• Do not need to provide staff with pen/paper (1) because orders are taken electronically (1)</li> <li>• Reduced complaints about incorrect order (1) as customer has placed the order/order not taken by waiting staff (1)</li> </ul> <p>Answers may focus on technical issues e.g.</p> <ul style="list-style-type: none"> <li>• No cables required (1) so reduced trip hazard (1)</li> </ul>	2	<p><b>Answer must be a direct advantage to the restaurant.</b></p> <p>Must deal with the specific question, so do not accept “easier” or “quicker” without expansion.</p> <p>Accept disadvantages of traditional waiter based ordering system.</p>

Question		Answer/Indicative content	Mark	Guidance
2	c	<p>Up to TWO marks. First mark for disadvantage and second for explaining relevance.</p> <ul style="list-style-type: none"> <li>• Initial cost of purchase (1) means that restaurant has to find capital/money (1)</li> <li>• Risk of theft (1) as these are mobile devices (1)</li> <li>• Extra on-going/running cost (eg power/maintenance) (1) as more expensive than paper and pen (1)</li> <li>• Some users/customers may not know how to use the device (1) because they are computer illiterate/do not have specialist knowledge/older generation (1)</li> <li>• Some users may not like it (1) and so not return (1)</li> <li>• Devices may get damaged if dropped (1) which costs a lot of money to repair /whilst pens a do not (1)</li> <li>• Images of specials would have to be added each week/as they change (1) because specials only run for a week (1) which wastes time (1)</li> <li>• Customers have no human point of contact (1) to discuss dietary needs (1)</li> <li>• Battery life is limited (1) and so devices would need to be charged (1)</li> <li>• May lose connection to wifi/network crash (1) and so order not received (1) Disabled customers may find it difficult to use the ipad (1) e.g. Parkinson's disease due to shaking of the hand (1)</li> </ul>	2	<p><b>This may be a disadvantage to anyone involved in the process.</b></p> <p><b>DO NOT AWARD</b> answers based on a slow wireless speed. This would not affect the system due to the nature of the data being sent.</p>

Question			Answer/Indicative content	Mark	Guidance
2	d	i	<p>ONE from:</p> <ul style="list-style-type: none"> <li>• Monitor/LCD Screen or equivalent (1)</li> <li>• Projector (1)</li> <li>• Printer (1)</li> </ul>	1	Projector is just about acceptable within the scenario.
2	d	ii	<p>First mark for identifying the feature and second mark for the description:</p> <p>e.g.</p> <ul style="list-style-type: none"> <li>• Includes a display device (1) that shows the orders (1)</li> <li>• (Monitor) has a hard casing (1) so that it is safe from accidental damage/dust/grease (1)</li> <li>• Is a flat device (1) so takes up little space/chefs won't bang their heads on it (1)</li> <li>• Bluetooth connected (1) so no wires to cause a trip hazard (for example) (1)</li> <li>• Produces a hard copy (1) that cooks can refer to (1)</li> </ul>	2	<p>Answer must refer to feature, and not purpose.</p> <p>Linked answer – can not award if 2di incorrect</p>

Question		Answer/Indicative content	Mark	Guidance
3	a	<p>TWO from:</p> <p>e.g.</p> <ul style="list-style-type: none"> <li>• Keyboard/keypad (1)</li> <li>• Mouse/touchpad/tracker ball (1)</li> <li>• Microphone (1)</li> <li>• Sip and puff device (1)</li> <li>• Head pointer (1)</li> <li>• Touchscreen/on screen keyboard (1)</li> </ul>	2	DO NOT award mobile or telephone.
3	b	<p>Up to FOUR marks. e.g.</p> <ul style="list-style-type: none"> <li>• So that the restaurant knows who is making the booking (1) so that the person can be identified when they arrive (1)</li> <li>• So that the restaurant knows how many people are coming (1) and can set out tables/ make sure they have enough food (1)</li> <li>• So that the restaurant can check when people are coming (1) and use tables more than once per night (1)</li> <li>• So that the restaurant has all of the details about the booking (1) so that they can have a table ready (1) at the right time (1) and of the right size (1) so that the restaurant runs smoothly/restaurant can prepare for arrival (1)</li> </ul>	4	<p>To get full marks, answer must explain two out of three of the items OR have given first mark point for all three, along with at least one relevant expansion</p> <p><b>Note that final point from fourth bullet may be applied to each bullet</b></p>

Question			Answer/Indicative content	Mark	Guidance
3	c		<p>First mark for identifying the issue and second mark for why.</p> <p>e.g.</p> <ul style="list-style-type: none"> <li>• Any age can go to the restaurant (1) so the information is not relevant (1) and so it is illegal to collect it (1)</li> <li>• The DPA (1) says should only collect relevant data (1)</li> <li>• Date of birth/the information is not needed to make the booking (1) as it is irrelevant (1)</li> </ul>	2	DO NOT AWARD “may not want to reveal”, as this could be true of any data, whether relevant or irrelevant
3	d	i	<p>Accept any relevant question that would fit the scenario</p> <p>e.g.</p> <ul style="list-style-type: none"> <li>• Do you have any special dietary needs?(1)</li> <li>• Is this a special occasion ?(1)</li> <li>• Do you require a baby/high chair? (1)</li> <li>• Date of booking (1)</li> <li>• What is your email address? (1)</li> <li>• How many courses will you be having? (1)</li> </ul>	1	<p>The booking form is for a meal at the restaurant.</p> <p>Accept answers that suit this scenario, and which take account of restrictions imposed by the Data Protection Act.</p> <p><b>Do not allow contact telephone number – in question</b></p>
3	d	ii	<p>Award mark for any clear and reasonable reason that matches the answer given for 3di.</p> <p>e.g.</p> <ul style="list-style-type: none"> <li>• So that they can buy in the necessary ingredients (1)</li> <li>• So they can decorate (or other example to suit the special occasion) (1)</li> <li>• So that they have enough available (1)</li> <li>• So that the customer can be sent a confirmation of the booking (1)</li> </ul>	1	<p>DO not award 3dii if 3di not awarded.</p> <p>Answer must match the answer for 3di.</p>



Question		Answer/Indicative	Marks	Guidance	
				Content	Levels of response
4		<p>Answers must deal with issues that were considered. These need not be issued that led to the app being adopted, but also ones that could have been considered as negative</p> <p>Data security (for restaurant and/or members of the public) :</p> <p><b>positive</b></p> <ul style="list-style-type: none"> <li>• Customer does not need to provide credit/debit/payment card number to a waiter</li> <li>• Customer does not need to pass over credit/debit/payment card</li> <li>• Reduced opportunity to skim or clone cards</li> <li>• Customer can pay by PayPal (or equivalent)</li> <li>• Customer does not need to provide PIN</li> </ul> <p><b>negative</b></p> <ul style="list-style-type: none"> <li>• Customer's data could be hacked/stolen (1)</li> </ul> <p>Restaurant needs:</p> <p><b>positive</b></p> <ul style="list-style-type: none"> <li>• Keep costs to a minimum</li> <li>• Customer can pay and go</li> <li>• No need for cashier</li> <li>• Avoid credit card charges</li> <li>• No need to hold cash on the premises</li> </ul>	8	<p><b>Level 3 answer</b></p> <p>Both factors are important. If the restaurant uses this app they will not need to employ as many staff, which will save them wages and so increase profits because customers will be able to pay using their own phones.</p> <p>If the restaurant uses the app for customers to pay, customers data will also be more secure because customers do not need to use their credit cards and the money goes directly into the restaurant's bank account, so no one gets a chance to copy the credit card number and PIN.</p> <p><b>Level 2 answer</b></p> <p>The app means that fewer staff are required, such as waitresses.</p> <p>The customer does not need to hand over their credit card when they are buying their food.</p>	<p><b>LEVEL 3 (7–8 marks)</b></p> <p>The answer will explain how the needs of the restaurant and the need for data security may have affected the choice.</p> <p>For full marks, the answer will</p> <ul style="list-style-type: none"> <li>• be in the context of a restaurant</li> <li>• be in the context of an app</li> <li>• will have considered both areas equally</li> <li>• will have explained how each focus area has affected the decision</li> </ul> <p>At the bottom end of the mark point, only one factor will be explained, although both will have been considered.</p> <p><b>Level 2 (4–6 marks)</b></p> <p>For this mark band, answers will describe how the decision was arrived, rather than explain the importance of the two factors.</p> <p>Sustained context may be enough to increase the candidate's score within this mark band, but should not move the candidate's mark into a higher mark band.</p>

Question			Answer/Indicative	Marks	Guidance	
					Content	Levels of response
			<p><b>negative</b></p> <ul style="list-style-type: none"> <li>• Need for staff training</li> </ul> <p>Answers MUST refer to the reason WHY the decision was taken.</p>		<p><b>Level 1 answer</b></p> <p><b>Example one mark answer</b></p> <p>Fewer staff are needed.</p>	<p>At the top of the mark band, the answer will have described both data security and the needs of the restaurant as factors that have been taken into account.</p> <p>At the bottom end of the mark band, there will be a <b>weak</b> description of factor(s) to do with data security and factor(s) to do with the needs of the restaurant.</p> <p>OR</p> <p>A description of factor(s) to do with data security OR the needs of the restaurant.</p> <p><b>Level 1 (1–3 marks)</b></p> <p>For three marks, a weak description of the process of making the decision, based on either data security OR the needs of the restaurant.</p> <p>At the bottom end of the mark band, any relevant point made that is not a repeat of the question, should be awarded.</p> <p><b>0 marks</b></p> <p>No valid answer (including no attempt to show the impact of either factor on the decision)</p>

## SECTION B

Question		Answer/Indicative content	Mark	Guidance
5	a	Desktop Publishing Software/DTP/Publishing (1)	1	Accept trade names.
5	b	<p>THREE from:</p> <p>e.g.</p> <ul style="list-style-type: none"> <li>• Text fields (1)</li> <li>• Page layout tools (1)</li> <li>• Templates/flyer formats (1)</li> <li>• Wizards (1)</li> <li>• WordArt (1)</li> <li>• Spell checker (1)</li> <li>• Borders (1)</li> <li>• Bold (1)</li> <li>• Italics (1)</li> <li>• Underline (1)</li> <li>• Cropping (1)</li> <li>• Layers (1)</li> </ul>	3	<p>Accept any appropriate feature of DTP software OTHER than adding/inserting or drawing graphics (or any other graphical feature, including photographs and icons). NB this does not exclude cropping or resizing.</p> <p>Colour on its own is not a feature.</p> <p>This answer may be awarded even if 5a not awarded although answers must be relevant to DTP.</p> <p><b>Answer may be presented as a sentence</b></p> <p>e.g. Text (1) can be made bold (1) and underlined (1)</p>
5	c	<p>Up to TWO marks available:</p> <p>e.g.</p> <ul style="list-style-type: none"> <li>• A licence where an author (1) has given permission for others to use/share/improve a work (they have created) (1)</li> <li>• Allows for free distribution (1) of <u>copyrighted</u> work (1)</li> </ul>	2	DO NOT mix and match answers. Only award two marks where there is a clear description of the term.

Question			Answer/Indicative content	Mark	Guidance
5	d		<p>Up to FOUR marks available for TWO explained answers.</p> <p>MAX two per answer</p> <p>Answers should be in the form of reason plus expansion/explanation.</p> <p>e.g.</p> <ul style="list-style-type: none"> <li>• To save money (1) as they do not have to pay to use the graphic (1)</li> <li>• So that they can amend the original graphic (1) without permission/to suit their needs (1)</li> <li>• Save time (1) as won't have to create own(1)</li> <li>• Clear what can and cant do (1) due to restrictions published with the graphic (1)</li> </ul>	4	<p>DO NOT mix and match answers. Only award two marks where there is a clear explanation.</p> <p>Only award "without permission" once.</p> <p>DO NOT ACCEPT "so that they are not breaking the law" etc.</p> <p>Creative Commons artwork <b>are not</b> copyright free.</p>
6	a	i	<p>ONE from</p> <ul style="list-style-type: none"> <li>• Postcode (1)</li> <li>• Email (address) (1)</li> <li>• Date of booking (1)</li> <li>• Time of booking (1)</li> </ul>	1	<p>Ignore small spelling mistakes, or capitalisation.</p> <p>Only award FORMAT checks (number of people is not a format check).</p> <p>Please refer to Fig 1 on paper.</p>

Question			Answer/Indicative content	Mark	Guidance
6	a	ii	<p>FOUR marks available:</p> <ul style="list-style-type: none"> <li>• Compares (structure/layout of) data given (1)</li> <li>• against expected structure/layout/pattern (1)</li> <li>• rejects if not as expected/does not match (1)</li> <li>• and produces an error message (1)</li> </ul>	4	<p><b>Description should match the answer at 6ai. If 6ai not awarded, DO NOT award this answer.</b></p> <p>However, answer may not specifically describe checking the actual item of data, so be prepared to accept that the answer matches 6ai unless it clearly does not.</p> <p>Read the whole answer and mark to candidate's best advantage.</p> <p>Treat each mark point separately.</p> <p><b>For full marks, MUST</b> cover check and inform. However, inform <b>MUST</b> be an error message, not a change of text colour (to red, for example).</p>
6	b		<p>Identify the validation method (first mark) (1) with descriptive comment (1)</p> <p>e.g.</p> <ul style="list-style-type: none"> <li>• Data type (accept example) (1) checks that data type is what is expected (1)</li> <li>• Range check (accept example) (1) checks data is within a range/does not go above OR below a set figure (1)</li> <li>• Limit check (accept example) (1) checks data does not go above/below a set figure (1)</li> <li>• Presence check (accept example) (1) checks that an entry has been entered (1)</li> <li>• Drop down list (1) to only accept items from it (1)</li> <li>• Length check (1) checks for required/maximum number of characters (1)</li> </ul>	2	<p>DO not accept FORMAT check. However, DATA TYPE is acceptable.</p> <p><b>First mark for identifying method, no second mark unless method identified.</b></p>

Question		Answer/Indicative content	Mark	Guidance
7	a	<p>Up to FOUR marks for a full comparison. e.g.</p> <ul style="list-style-type: none"> <li>• Email requires both sender and receiver to have access to network/internet/email services to be sent (1) and so the person may not receive message (1) whereas if the manager finds the person (1) they can be sure that the message is received (1)</li> <li>• Email is written (1) and so will include all details (1) but face-to-face is spoken (1) and so details may be forgotten (1)</li> <li>• Email is a written form of communication (1) and so does not include inflexion/emotion (1) face-to-face is spoken (1) and so can include emotion (1)</li> <li>• Email does not get immediate feedback (1) so would not know the answer until too late (1) face-to-face is immediate (1) so would know the answer at once/in time(1)</li> <li>• Email is a closed message (1) which cannot be changed (1) but face-to-face conversation can change (1) to include persuasion if necessary (1)</li> </ul>	4	<p><b>MAX</b> two marks if only one method is considered.</p> <p>Answers such as “face-to-face is more persuasive” award one mark, unless expanded.</p> <p>Email is NOT quicker than face-to-face</p>
7	b	<p>First mark for identifying the method, second for description. e.g.</p> <ul style="list-style-type: none"> <li>• Put a (group) message (1) on social media (or example) (1)</li> <li>• Telephone (or equivalent (e.g. videocall)) each member of staff (1) to ask the question (1)</li> <li>• Send a text/SMS/IM (1) to ask the question (1)</li> <li>• Text message (1) written text that is sent to the phone (1)</li> </ul>	2	<p>Award any sensible answer that would match the scenario. Answer must be about checking availability at short notice of current staff and could describe the method OR how the method is used.</p> <p>(Sensible would exclude carrier pigeon, or advertise, for example)</p> <p>DO NOT award “face-to-face” or “email”.</p> <p>DO NOT award “and ask” on own. Mark as TV.</p> <p>DO NOT accept a direct repeat of all or parts of the question</p>

Question		Answer/Indicative content	Mark	Guidance
8	a	<p>Up to FOUR marks available:</p> <p>e.g.</p> <ul style="list-style-type: none"> <li>• Shines a light onto the code (1)</li> <li>• The barcode reader measures the intensity of (reflected) light (1)</li> <li>• As it passes over a line of black and white bars (of varying width) (1)</li> <li>• Measures the (thickness of) gaps between (black/white) bars (1)</li> <li>• Converts this data into a code (1)</li> </ul>	4	<p>ONLY award answers that are concerned with reading information. DO NOT AWARD points made about what happens after the information has been gathered.</p> <p>DO NOT accept:</p> <ul style="list-style-type: none"> <li>• Scanning/ reading etc.</li> </ul>
8	b	<p>ONE from:</p> <ul style="list-style-type: none"> <li>• Watermark (1)</li> <li>• Hologram (1)</li> <li>• Highly complicated designs (1)</li> <li>• Glossmarks (1)</li> <li>• RFID (1)</li> <li>• Magnetic/metal strip (1)</li> <li>• <u>Embossed</u> stamp (1)</li> <li>• <u>Customer's</u> name (1)</li> </ul>	1	

**OCR (Oxford Cambridge and RSA Examinations)**  
1 Hills Road  
Cambridge  
CB1 2EU

**OCR Customer Contact Centre**

**Education and Learning**

Telephone: 01223 553998

Facsimile: 01223 552627

Email: [general.qualifications@ocr.org.uk](mailto:general.qualifications@ocr.org.uk)

[www.ocr.org.uk](http://www.ocr.org.uk)

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**OCR (Oxford Cambridge and RSA Examinations)**  
Head office  
Telephone: 01223 552552  
Facsimile: 01223 552553

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