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Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY

0417/11

Paper 1 Theory

October/November 2021

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 International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2021 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

This document consists of **10** 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.

Question	Answer	Marks
1(a)	The physical components of the computer	1
1(b)	Two from: Processor Motherboard Video/graphic card Sound card	2
1(c)	One from: Programs for controlling the operation of a computer Programs for processing of electronic data Program/data/applications	1
1(d)	Two from for example: Word processing Spreadsheet Database Presentation	2

Question	Answer	Marks
2	Car production workers Payroll workers	2

Question	Answer	Marks
3	Two from: Tends to be a faster to load up the operating system They are more lightweight so can be carried anywhere//More portable Don't generate as much heat Lower power consumption therefore batteries last longer	2

Question	Answer				Marks
4		Looking at existing paperwork	Observation	Questionnaire	4
	This method gives the systems analyst an overall view of the system		✓		
	Individuals can remain anonymous			✓	
	This method allows information to be collected that cannot be obtained from any other method	✓			
	This method gives the quickest analysis of the data			✓	

Question	Answer	Marks
5(a)	Six from: Each module is tested separately Modules are tested by the programmers Modules/system are tested with live data Errors and problems are noted Improvements are made to the module The module/system is retested Modules are combined and tested together System is tested as a whole System is tested to meet the user's requirements	6

Question	Answer	Marks
5(b)	Eight from: Advantages Prevents double booking The customer can see immediately when the holiday has been booked Bookings can be made 24/7 No need to travel to the booking office/queue up so saves time Can be booked from any location Saves cost of travelling to the booking office Tickets are usually sent online and therefore paperless//Saves printing and postal costs Usually cheaper as lower/fewer overheads Customers can more easily see the tours that are available Disadvantages Setting up is expensive//maintenance is expensive Internet access is needed to run the booking system therefore the cost may be increased More reliant on server/network Booking mistakes can be more easily made Mistakes are more difficult to rectify due to the speed of booking If the system crashes during the booking the booking may not be made To gain full marks there must be at least one advantage and one disadvantage	8

Question	Answer	Marks
6	Problem: Award a mark for each problem identified I avoid back and neck problems I avoid eye strain I avoid getting headaches I avoid epilepsy Strategies: Max four from: Make sure the top of the screen is at eye level Make sure that I adjust the tilting screen correctly Take regular breaks Do neck/back exercises Make sure I use blue lens spectacles Use a screen filter Use a matt/anti-glare screen Turn the screen away from the window Use a computer screen for a short time/take regular breaks Have my eyes tested regularly Improve the lighting in the room Sitting further away from the screen Keeping the screen clean Position the screen to reduce glare Use a non-flickering screen/LED/LCD Turn the brightness down on the screen	6

Question	Answer	Marks
7	Four from: Smartphone sends data to its Bluetooth connector Data is converted to radio waves The smartphone automatically detects nearby devices The smartphone pairs to the other device if in range The smartphone randomly chooses one of 79 possible channels If the channel is in use, it randomly chooses another The connection changes channels, every few seconds Sends the radio wave to the other device	4

Question	Answer				Marks																				
8(a)	Four from: Internet is used to share and distribute information outside the organisation whereas the intranet within an organisation Internet is used to send and receive emails and messages outside the organisation whereas intranet sends and receives messages within an organisation The intranet meets the needs of the organisation whereas internet aims to meet the needs of everybody The internet facilitates collaboration with others whereas the intranet is only used to collaborate with other members within an organisation The internet is used to browse the World Wide Web				4																				
8(b)	<table><tr><td></td><td>Facial recognition</td><td>Password</td><td>Voice Recognition</td></tr><tr><td>This method cannot access the smartphone unintentionally</td><td></td><td>✓</td><td></td></tr><tr><td>The accuracy of this method can be affected by noise</td><td></td><td></td><td>✓</td></tr><tr><td>This method requires the use of the smartphone's camera</td><td>✓</td><td></td><td></td></tr><tr><td>This method could be compromised by shoulder surfing</td><td></td><td>✓</td><td></td></tr></table>					Facial recognition	Password	Voice Recognition	This method cannot access the smartphone unintentionally		✓		The accuracy of this method can be affected by noise			✓	This method requires the use of the smartphone's camera	✓			This method could be compromised by shoulder surfing		✓		4
	Facial recognition	Password	Voice Recognition																						
This method cannot access the smartphone unintentionally		✓																							
The accuracy of this method can be affected by noise			✓																						
This method requires the use of the smartphone's camera	✓																								
This method could be compromised by shoulder surfing		✓																							

Question	Answer	Marks
9(a)	Two from, for example: Fit windscreens Fit the wheels Welding body panels Move cars from one place to another Fit engines	2
9(b)	Six from: The depth of the paint is read by the sensor The depth of paint is sent from the sensor to the ADC/microprocessor The digital data from the ADC is read by the microprocessor The microprocessor compares this data to the minimum depth of the paint/preset value If the data is less than the minimum depth/preset value, the microprocessor sends a signal to the actuator If the data is more than the minimum depth/preset value microprocessor does nothing Process is continuous	6
9(c)	Six from: Advantages They can work in areas where it would be harmful for humans They can work 24/7 Cheaper in the long run Higher productivity The finish is more consistent Disadvantages Expensive to purchase Skills can be lost Expensive to maintain/reprogram Expensive to start up//train staff to operate the robots To gain full marks there must be at least one advantage and one disadvantage	6

Question	Answer	Marks
10(a)	Three from: LOOKUP allows for horizontal and vertical searching whereas VLOOKUP allows for vertical searching LOOKUP does not require an index value/only works on the second row/column whereas VLOOKUP requires an index value LOOKUP usually only works when the data is sorted VLOOKUP only returns data to the right of the searched column VLOOKUP user can select either an approximate or exact match to the lookup value	3
10(b)(i)	Three from: The formula looks up the value in D2... ...In the (range) A2 to A7 And returns the <u>corresponding</u> value In the 3rd column/Column C	3
10(b)(ii)	Add FALSE/0 to the end of the formula – 1 mark Sort the range into ascending order of column A – 1 mark	2
10(c)	Poor	1
10(d)	Four from: Quicker to type in the formula Fewer mistakes when typing in the formula Easier to spot mistakes Easier to expand the range Takes up less storage space Easier to remember when retyping	4

Question	Answer	Marks
11(a)	Two from for example: Email address Real names DOB Home address Contact phone number Membership card number Location data Internet Protocol (IP) address Picture of yourself Gender	2

Question	Answer	Marks
11(b)	Two from: Password should not relate to personal details Should be a long password Not previously used password Should not include repeating/obvious patterns//predictable words Password should be strong	3
11(c)	Six from: Use anti-spyware/up to date antivirus software Play the games with the firewall operational Play only with authorised versions of games which you have purchased from the correct sources and for which you have a licence Download/buy files and new software from reputable sources Do not forget to delete your account details when you are not playing again Keep the game software up to date. When disposing of your gaming device ensure all of your personal information has been deleted. Choose a username that does not reveal any personal information Be aware of criminals buying or selling 'property' that exists inside a computer game, in the real world	6

Question	Answer	Marks
12(a)	Two from: Dedicated website/app/platforms It interacts with other users Can be used to find people with similar interests	2
12(b)	Six from: Communicating with friends and colleagues all over the world Promotes collaboration and teamwork Instant communication Easy to find other people with common interests Allows the exchange of content or documents Allows people to share best practice/knowledge/skills It can help in community projects Gives up to date information Can give more confidence to some people who may be shy//develop social skills As it is seen by a lot of people helps advertising Easier for online buying and selling//market products Can be used more easily for analytics and market research It can promote talent quickly, musicians Make/socialise with new friends	6

Question	Answer	Marks
13(a)	Four from: Load the document Highlight the text Click Insert then Table Select Convert text to table Click on 2 columns Click separate by : Click ok	4
13(b)	Two from: Compares each typed word... ...with its dictionary/database Uses algorithms to check the spelling	2
13(c)	Two from: Real names are not recognised Badly spelt words will not be recognised Incorrect grammar may not be recognised It will not find words that sound the same but have been used incorrectly Some words may be spelt incorrectly but form another word They do not learn from their mistakes unless added to the dictionary They may use the wrong dictionary	2