Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/13**

Paper 1 Written **May/June 2018**

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 May/June 2018 series for most Cambridge IGCSE™, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

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)	ROM	**1**
1(b)	Internal hard disk	**1**
1(c)	RAM	**1**
1(d)	Video card	**1**

Question	Answer	Marks
2		**4**

	Desktop (✓)	Laptop (✓)	Smartphone (✓)
A computer that is only used in one place.	✓		
Must always be connected to an external power source to work.	✓		
Small enough to fit into a pocket.			✓
A mobile device with a large keyboard and display.		✓	

Question	Answer	Marks
3		**4**

	MICR (✓)	OMR (✓)	OCR (✓)
Used to read magnetic data on cheques.	✓		
Used to read car number plates.			✓
Used when entering handwritten text.			✓
Used to read multiple-choice examination responses.		✓	

Question	Answer	Marks
4	3D printer Monitor	**2**

Question	Answer	Marks
5(a)	**Two** from: pH (sensor) Temperature (sensor) Light (sensor) Oxygen (sensor) Nitrogen (sensor)	**2**
5(b)	Analogue to digital convertor/ADC	**1**
5(c)	**Three** from: The computer receives the data from the sensor The computer compares the data with pre-set values/stored data If the data is outside the limit computer sends a signal to an alarm If the data is within the limit no action is taken The data is stored for later analysis The data is sent automatically to a monitoring system	**3**

Question	Answer	Marks
6(a)	**Two** from: This is a scam involving emails A legitimate looking email is sent containing a link The user clicks the link and is sent to a website where personal details are asked for The email asks for details of your (bank) account/personal details	**2**
6(b)	**Two** from: A virus is sent containing malicious code The virus downloaded/installed into the computer When the user types in the URL (of the bank) it directs a user to a fraudulent website As the user enters details they are copied to the criminal's website	**2**
6(c)	**Two** from: A text message (SMS) is received/sent Contains a link or phone number The user phones or taps links and asked for personal information/details of the account	**2**

Question	Answer	Marks
7	**Six** from: Fill the square with black/invert the square Copy and paste the square Place/position the square to the left and below the original Copy and paste both the squares Position the squares Group the squares Resize to 1.5 cm/15 mm Save the logo	**6**

Question	Answer	Marks
8	**Six** from: *Advantages* Robots can work in areas of the farm that could be dangerous/harmful for a farm worker Robots are better at ensuring a continuous supply of feed Robots available to milk and feed 24/7/ continuous Running costs are cheaper in the long run as robots do not need to be paid Higher/more productivity due to cows being milked at times of their choice Quicker to see illness in animals due to system checking a number of factors against stored values, so is more objective. The same measurements are taken on all the animals every time the robot checks them therefore better consistency Better/more frequent checking of the animals Robotic tractors can carry out more tasks in a short time Frees up farmer to do other things *Disadvantages* More expensive to buy Maintenance is more expensive Patterns of illness may be found quicker manually Farm workers become de-skilled therefore if the system breaks down there could be issues completing the work Max **five** marks for only advantages/disadvantages A mark is available for a reasoned conclusion	**6**

Question	Answer	Marks
9(a)	font-family: "Comic Sans", Arial, sans-serif; 1 mark for "Comic Sans", 1 mark for Arial, 1 mark for sans-serif; Must be in the correct order	**3**
9(b)	border-style: dashed; border-width: 3px 1 mark for border-style: 1 mark for dashed; 1 mark for border-width: 1 mark for 3px	**4**
9(c)	#000000;	**1**
9(d)	font-weight: bold; 1 mark for font-weight: 1 mark for bold;	**2**

Question	Answer	Marks
10	**Three** from: Pen drives work on most computer systems magnetic tape drives may not Magnetic tape drives are more expensive to buy Pen drives are more robust Finding/restoring data from a pen drive is easier Pen drives are less susceptible to magnetic fields Easier to carry around/more portable	**3**

Question	Answer	Marks
11(a)	To help (users) learn/know how to use the software/system To help users to overcome problems	**2**
11(b)	**Two** from: To help programmers/analysts to make improvements to the system To help programmers/analysts to repair the system To help programmers/analysts to maintain the system	**2**
11(c)	**Four** from: how to load/run/install software how to save a file how to print data how to add records how to delete/edit records error messages error handling trouble-shooting guide/help line frequently asked questions/FAQ glossary of terms	**4**
11(d)		**3**

	Tick (✓)
Observe users operating the old system.	
Compare the final solution with the original requirements.	✓
Design the report layout.	
Check user documentation to see it is correct.	
Interview users to gather responses about how well the new system works.	✓
Test the system works correctly.	
Identify any necessary improvements that need to be made.	✓
Design error handling.	

Question	Answer	Marks
12	**1 mark** for visual verification and **1 mark** for double data entry Visual verification is a comparison of data with the original data source Double data entry is where data is entered twice and computer compares the two sets of data	**2**

Question	Answer	Marks
13(a)	**Three** from: A web-conference is conducted online/VOIP Web-conference uses IP technology/addresses Participants tend to be sat at computers and can view/hear other participants Web-conferences tend to be interactive Organiser allows participants to click a link to ask questions … … participants are then queued Possible to draw or write on a 'whiteboard' using keyboard and mouse Possible to integrate chat, instant-messaging and communicate verbally	**3**
13(b)	**Three** from: Video-conferencing provides real-time two-way audio/video communication whereas web-conferencing can be either two-way or a webcast Video-conferencing tends to be via the internet whereas web-conferencing uses a phone or VOIP Video-conferencing requires specialised equipment on both ends for a successful connection whereas web-conferencing uses a computer Video-conferencing participants use a shared microphone and speakers whereas web-conferencing participants sit at their own computers Sound quality on video-conferencing is poorer than web-conferencing	**3**

Question	Answer	Marks
14		**4**

Ways of minimising the health issue	Health issue
Use ergonomic keyboards.	RSI
Use fully adjustable chairs to give correct posture.	Backache
Change to LCD screens from CRT screens.	Eye strain
Have the monitor at the correct height.	Neck-ache

Question	Answer	Marks
15	**Four** from: Safer to use drones than human life being risked in flood waters Drones can fly low over the flooded areas checking the extent of the damage, would be more difficult/dangerous for a human Drones can be used in areas that would not be accessible to humans Cheaper than using a helicopter to film the flooding Drones can cover a greater area than a human in the time available They are portable and can be transported from place to place easily Can automatically return to the base station when fuel is running low	**4**

Question	Answer	Marks
16	**Six** from: WLAN is wireless therefore devices can be easily added/changed WLAN is wireless so relatively easy to connect to portable devices WLAN uses radio signals/wireless technology/wifi WLAN uses (wireless) access points/wireless node WLAN has a limited range WLAN signal strength can diminish the further away from the access point WLAN signals affected by walls/obstacles WLAN is more prone to hacking than cabled systems WLAN susceptible to interference from another radio signals	**6**

Question	Answer	Marks
17(a)	*Office workers* Observation of the processes taking place – 1 mark **One** mark from: Enables the systems analyst to see the whole system There are too many workers to interview them all Questionnaires/interviews would stop them working on their tasks OR Looking at existing paperwork – 1 mark **One** mark from: Can see how the files are stored/processes undertaken It allows information to be obtained that cannot be obtained in other ways enables necessary storage, computer equipment to be identified If they are observed, then they may change the way they work They are too busy to be interviewed *Delivery drivers* Questionnaires could be handed out – 1 mark **One** mark from: They can complete them in their own time/at their leisure Questionnaires tend to be more accurate The data can be collated more quickly as everyone can complete at the same time rather than interviewing which is one after the other Individuals remain anonymous therefore they will be more truthful/reliable Easier to analyse	**4**
17(b)	**Four** from: There is only one production line therefore parallel running is not an option There are no branches therefore pilot is not an option Other methods would be more expensive to implement Other methods would take longer to implement The new system needs to be up and running very quickly otherwise orders are lost (as only one production line) Other methods would require more staff and it's a small company	**4**

Question	Answer	Marks
18	To be marked as a level of response: Level 3 (7–8 marks): To gain a level 3 there must be a reasoned conclusion and a justification and must have both sides of the argument Award a mark for justification of the points raised Award a mark for a reasoned conclusion Level 2 (4–6 marks): For level 2 there must be more than three statements; which cover both sides of the argument and achieved all of Level 1 Level 1 (1–3 marks): For level 1 there must be statements up to max three Level 0 (0 marks): Response with no valid content **Examples of answers written below** Answers may make reference to, for example: Up to date antivirus software needed/scan files/attachments when downloading/install anti-virus software Computer/emails/uploads need to be scanned regularly Firewall required to stop attacks from suspicious computers Has a blocked website list/has a white list A firewall can be looked through therefore two are better than one Stops fraudulent sites attacking the computer Up to date anti-spyware software can be used Use of strong passwords Changing passwords from default passwords Regularly changing passwords Using different passwords for sites Not using a computer/mobile device in a public area Data on the cloud needs to be encrypted and have a strong password Good antivirus can be expensive to purchase Free antivirus software may not be up to date This can cause memory issues in the computer as updates use memory Antivirus needs to be in operation at all times slowing the operation of the computer Backup will not necessarily stop a virus Some viruses hide in the system therefore antivirus needs to be in operation at all times The firewall can affect the operation of the computer and stop some uploads May need to be shut down at times to upload files therefore making computer unsafe Some legitimate software can be blocked by the firewall Spyware sends a user to a fraudulent website and records key logs User does not know that the spyware has been uploaded Popups are stopped by anti-spyware, pop-under are not Too complex a password can be easily forgotten Password files may not be backed up Hackers can breach most passwords	**8**