Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/12**

Paper 1 Written **October/November 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 October/November 2018 series for most Cambridge IGCSE™, Cambridge International A and AS Level 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.

This document consists of **11** 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		**2**

	applications software (✓)	**system software (✓)**
Control software	✓	
Compiler		✓
Word processing	✓	
Device drivers		✓

2 marks for 4 correct ticks
1 mark for 2 or 3 correct ticks
0 marks for 0 or 1 tick

Question	Answer	Marks
2(a)	a laser printer	**1**
2(b)	a magnetic ink character reader	**1**
2(c)	a wide format printer	**1**
2(d)	a speaker	**1**

Question	Answer	Marks
3(a)	**Two** from: Password is too short Easy to guess Personal information used in the password Doesn't contain a mixture of upper case, lowercase, numbers or symbols	**2**
3(b)	**Two** from: Change passwords regularly Use a strong password Do not write the password down Do not tell anyone else the password Must be easy for the user to remember	**2**

Question	Answer	Marks
4(a)	**Three** from: Student scans a card // teacher records the student as present on computer system System records time of arrival System sends the data to the school administration database The data is searched in the database If student arrives after a certain time the student's attendance record is flagged as late/absent Attendance/lateness records are automatically printed/sent to parents Letters/texts are automatically sent to parents to show absenteeism/lateness of students Parents can logon to the system to check student's attendance/lateness records	**3**
4(b)	**Two** from: The information is more up to date Information about the student can be obtained quickly after fire/emergency Information regarding patterns of absence can be found quickly Helps to tackle truancy/lateness Parents can be informed automatically about patterns of lateness/attendance Lateness is entered consistently in the school Automatic lateness reports for the form tutor can be generated Accurate/up to date records if there is a fire Speeds up the process as attendance is not marked manually	**2**
4(c)	**Four** from: Appropriate spacing for each field Forward/backward buttons Submit/search button Information attempts to fill the page AND design looks appropriate to scenario Box/boxes to enter Semester or Student_ID Drop down for the Semester or Student_ID // radio button for semester Suitable title Instructions/help 2 marks for all six fields 1 mark for three to five fields 0 marks for less than three fields Student_name, Tutor_group, Days_present, Number_of_lates, Number_absences, Parents_phone_number,	**6**

Question	Answer	Marks
4(d)	1 mark for correct validation check for each field *Semester* Lookup *Number_of_lates* Range check *Parents_cell_number* Length check/format check	**3**

Question	Answer	Marks
5	*Benefits* Max **three** from: Easier to use as no need to type commands No need to memorise/learn commands Can exchange data between different applications Better help facilities *Drawbacks* Max **three** from: Takes up more RAM/hard disk space/memory Can be slower for experienced programmers to use. Can be slower to run as graphics have to be loaded/larger program Restrictive can only use pre-defined functions Not in direct contact with OS/computer	**4**

Question	Answer	Marks
6(a)	To be marked as a level of response: Level 3 (7–8 marks): Complete level 2 To gain 7 marks there needs to be a justification of points made To gain 8 marks there must be a reasoned conclusion Level 2 (4–6 marks): Complete level 1 Award a mark for benefits and drawbacks or expansions of each. To gain 6 marks there needs to be benefits and drawbacks to both patients and staff To achieve 4 marks there must be at least one benefit and drawback. Level 1 (1–3 marks): Award a mark for benefits or drawbacks to a maximum of 3 marks Level 0 (0 marks): Response with no valid content For example: **Benefits** Faster booking system as there is no need to contact individual departments Bookings can be made last minute 24/7 booking The bookings can be easily checked on the internet Easier to cancel/change a booking Faster to cancel/change a booking Easier to book in other medical facilities Multiple bookings can be made for different medical units Email/text reminders More convenient can book from any device/on the move Automatic confirmation of the booking Less time spent on the phone therefore freeing up the system Less staff needed at the medical units therefore cheaper The bookings can be planned easily in advance Reminders can be sent via email/text therefore reducing cost of posting them Repeat appointments can be made automatically therefore saving time Frees up staff to do other things Reduced the patients that do not show up as reminders sent this saves money **Drawbacks** Fear of lack of privacy of the data Fear of lack of security of data If the system goes down the ability to book an appointment is lost Some people prefer to talk to a medical person Medical emergencies may be overlooked Cost of making the system secure Cost of maintaining/setting up the system	**8**

Question	Answer	Marks
6(b)	**Three** from: Ensures consistency across all documents Lets people know that the stationery/documents belong to the same medical authority To reduce the time spent in setting up and formatting documents To reduce cost of setting up and formatting documents To reduce the risk of errors e.g. mis-spellings, logos omitted etc.	**3**

Question	Answer	Marks
7(a)	State = NOT 'Extinct' AND Country = 'China' AND Last_eruption < 1900 State = – 1 mark or State <> – 1 mark NOT 'Extinct' – 1 mark or <> 'Extinct' – 1 mark AND Country – 1 mark = 'China' – 1 mark AND Last_eruption – 1 mark < 1900 – 1 mark	**6**
7(b)	Tengchong Wudalianchi	**2**
7(c)	Wudalianchi	**1**
7(d)	**Drawbacks** Max **five** marks**:** Drones can break down due to chemicals in the gas cloud The chemicals/heat/dust can corrupt the readings of the sensors The drone may have to fly a long distance to reach the gas cloud and run out of fuel/battery/signal Navigation can be affected by the gas cloud The cost to buy/setup the drone is expensive Need a skilled operator therefore more expensive **Benefits** Max **five** marks**:** The results are collected faster More accurate results produced Results are processed automatically Graphs and charts can be produced automatically The drone can get closer to the cone than a human Safer as humans do not need to risk lives taking the measurements Drones can operate continuously/24/7 Drones can analyse the data continuously Readings can be taken more frequently Multiple variables can be monitored at the same time Can operate in areas that are not accessible/dangerous to humans	**7**
7(e)	**Two** from: The sensors read analogue data The computer reads digital data The data needs to be converted from analogue to digital	**2**

Question	Answer	Marks
8(a)	**Two** from: Junk email Unsolicited email Can consist of unwanted adverts	**2**
8(b)	**Two** from: Spam may contain spyware/phishing Spam may spread malware/viruses The spam email fills the inbox and stop other emails May attempt to solicit personal data/bank details	**2**
8(c)	**Four** from: Do not opt in to marketing emails Delete accounts that you no longer use Never reply to a spam email // Don't communicate with spammers Never reveal main email address to strangers // set up an email address just for buying online Use a spam filter // click on email address and add to blocked email // block the sender	**4**

Question	Answer	Marks
9	**Three** from: The router reads the data packet destination address Looks up the paths to get to that address Compares to its routing table to get to the destination address Checks how busy the paths are Sends the packet on the least congested/quickest path	**3**

Question	Answer	Marks
10(a)	**Six** from: Observation of the current system Interviewing the railway manager Questionnaire to the passengers/railway staff Looking at existing paper work Identify the inputs, processing and outputs of the current system Identify the problems with the current system Identify the user and information requirements/objectives for the new system Identify the hardware and software of the new system	**6**
10(b)	**Two** from, for example: Name (first name and surname) Address Gender Date of birth Mobile phone number Email address	**2**
10(c)	To ensure that the data entered has been copied correctly	**1**

Question	Answer	Marks
10(d)	Proof reading is checking the content of the data for errors Verification is comparing the data with the original	**2**

Question	Answer	Marks
11	1 mark for correct description of PDF and 1 mark for correct description of RTF: PDF is portable document format is readable on a PDF viewer or a browser RTF is rich text format and is readable by all word processing software **Three** from: RTF uses only basic font formatting // PDF uses full formatting. RTF does not allow graphs // PDF does allow graphs RTF does not allow comments // PDF does allow comments RTF is fully editable // some PDF cannot be edited PDF allows for digital signatures // RTF does not allow digital signatures PDF tends to be compressed // RTF is not compressed	**5**

Question	Answer	Marks
12(a)	1 mark for each correctly described part of the web address. *https://* This is the hypertext transfer protocol secure Set of rules/protocol *hothouse-design* this shows the domain name that the company have purchased *.uk* The company/domain is registered in the UK /portfolios The folder in which the work is stored on hothouse's server	**4**
12(b)	Word/phrase/image When clicked links to another document/page/website/top or bottom of the page	**2**

Question	Answer	Marks
13(a)	**Function** **Two** from: It is a special type of formula/complex formula Functions are built into the software/spreadsheet Functions can be used to simplify complicated calculations They can have built in commands Function has a pre-defined name/reserved word **Formula** **Two** from: A formula can contain a function Formulas can be simple calculations/mathematical operation Formulas can be typed directly into the formula bar	**4**
13(b)	**Two** from: Easily refer to a group of adjoining cells Shortens/simplifies formulae Enables you to refer to a group of cells without having to lookup cell references Don't have to re-set the absolute referencing manually	**2**

Question	Answer	Marks
14		**4**

	Tick (✓)
Emails can only be sent from a computer.	
An email can be used to send a message to many people at the same time.	✓
It always takes a long time for an email to arrive.	
All emails must have an attachment.	
Attachments may have to be compressed to be sent via email.	✓
Emails can be used to send legal documents.	✓
Every email has to be printed out.	
In order to send an email back to the sender without retyping the address; reply is used.	✓
Email means extended mail.	
Email attachments are always checked for viruses before they are sent.	