Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/11**

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)	A numeric keypad	1
1(b)	An interpreter	1
1(c)	A 3D printer	1
1(d)	A speaker	1

Question	Answer	Marks
2		4

	Magnetic tape	Blu-ray	DVD RAM
Does not require a laser to read the data.	✓		
Uses serial access only.	✓		
Used to store and play HD movies.		✓	
Can store and read data at the same time.			✓

Question	Answer	Marks
3(a)	Wide Area Network	1
3(b)	Local Area Network	1

Question	Answer	Marks
4	Mouse Touch screen Remote control	3

Question	Answer	Marks
5(a)	Microprocessor reads digital data Data needs to be converted so the microprocessor can understand/read the data Sensor reads analogue data	3

Question	Answer	Marks
5(b)	**Five** from: The microprocessor will not forget to take readings whereas the human might Response time to process the data is faster than manual methods The system is automatic, so workers can be doing other tasks Microprocessor can monitor continuously / 24/7 The readings will be more accurate Readings can be taken more frequently More readings can be taken at once Safer to take the readings as the user does not need to go close to the geyser The sensors can remain in place for longer periods of time The microprocessor can automatically create graphs Data can be analysed / processed faster	**5**

Question	Answer			Marks
6		**moderated (✓)**	**un-moderated (✓)**	**2**
	All posts are held in a queue.	✓		
	Posts are not policed.		✓	
	This forum reduces the chance of offensive messages.	✓		
	This stops several postings of the same topic.	✓		
	4 correct answers – 2 marks 2 or 3 correct answers – 1 mark 1 correct – 0 marks			

Question	Answer	Marks
7	*h1* ; (semi-colon) missing after serif text-align: centre should be text-align: center *h2* *t*ext-decoration: underlined should be text-decoration: underline *body* the brackets [ ] should be { } *table* border-style: dot should be border-style: dotted border width: 3px should be border-width: 3px	**6**

Question	Answer	Marks
8	Max **four** from: Neither introduce the system as a whole new system (across the company) / both introduce system in parts Both allow for the performance of the new system to be thoroughly assessed / tested Both allow gradual training Both take time to introduce the whole of the new system (to the whole company) Only one distinct part is being used so safer to implement Max **four** from: *Pilot implementation* Whole system is implemented in one branch / one office at a time If the new system fails only one branch is affected Implemented in a company which has many branches all doing the same work *Phased implementation* New system is implemented part by part Only one part is being implemented but could affect other departments To gain full marks at least **one** point from each section is needed, both pilot and phased must also have been compared.	**6**

Question	Answer	Marks
9(a)	<table><tr><th>Field name</th><th>Data type</th></tr><tr><td>Breed_of_cow</td><td>Text</td></tr><tr><td>Date_of_birth</td><td>Date</td></tr><tr><td>Weight_of_cow</td><td>Numeric: decimal/real</td></tr><tr><td>Average_milk_yield</td><td>Numeric: decimal/real</td></tr><tr><td>Animal_passport_number</td><td>Text</td></tr></table>	**5**
9(b)	Animal_passport_number	**1**
9(c)	Matched pairs Format check The data is in the format 3 digits ‘/’ 4 digits or Length check Length of exactly 8 characters	**2**

Question	Answer	Marks
9(d)	Max **five** from: Highlight A7 to B16 Hide row 6 Select insert Select graph Choose chart – bar chart Add chart title Title example milk yield for cow 971 / 2016 Add axes titles Add a legend Right click and select move to new sheet Type an appropriate title / name on the tab Save the chart **1 mark for the name of the new sheet** – Allow any appropriate name	**6**

Question	Answer	Marks
10(a)		**4**

	Tick (✓)
Inputs to the current system.	
Data capture forms.	✓
Report layouts.	✓
Limitations of the system.	
Observation methods.	
Improvements to the system.	
User and information requirements.	
Validation routines.	✓
Problems with the current system.	
File structure.	✓

10(b)	This is data that has been used with the current system / data not created for test purposes Therefore the results are known	**2**

Question	Answer	Marks
10(c)	**Three** from: program listing program language program flowcharts/algorithms system flowcharts file structures list of variables test runs validation routines	**3**

Question	Answer	Marks
11(a)	**Five** from: An Interactive user interface appears Questions are asked about the illness Yes and No type answers to the questions Answers lead to other questions The inference engine searches … … the knowledge base … … using the rules base Probabilities / possibilities of diagnoses and treatments are displayed Displays the ways it achieved the solutions / conclusions / explanation system	**5**
11(b)	**Two** from: (for example) Mineral prospecting Car engine fault diagnosis Chess games Tax queries Careers recommendations	**2**

Question	Answer	Marks
12(a)	**Three** from: Webcam / video camera Speakers / headset / headphones Large monitor / television / data projector Microphone	**3**

Question	Answer	Marks
12(b)	**Three** from: Time lag / lip sync caused by the image not being synchronised with the sound Poor picture quality caused by the speed of connection / quality of the hardware More likely to have poorer sound quality caused by the quality of the hardware / connection Confidential material about the new cars may have to be signed / viewed in person The new car may have to be viewed in person Hardware breakdown stops the conference taking place Communication breakdown stops the conference taking place Different time zones will mean the conference has to take place at inconvenient times	**3**
12(c)	Max **two** marks from: Scrambling / encoding of data / convert plain text to cypher text Uses encryption software / key to encrypt it Requires a decryption / encryption key / software to decrypt Max **two** marks from: Meaningless to the hacker Secures data being transferred from computer to computer Protects sensitive data To gain full marks the answer must include **both** explanation and use	**3**

Question	Answer	Marks
13	Electrocution, caused by touching bare wires / allowing food and drink to spill liquids on to computers Falling objects can cause injury Tripping over loose cables can cause injury Fire caused by overloading power sockets / overheating computers	**4**

Question	Answer	Marks
14(a)	**Two** from: Three-dimensional, computer generated environment It can be explored and interacted with, by a person Can manipulate objects or perform a series of actions Replicates an environment Makes use of the sensory experience	**2**
14(b)	**Two** from: Virtual reality headset / head mounted display / Virtual reality goggles Speakers / headphone The tactile glove Joystick / controllers / driving wheel	**2**

Question	Answer	Marks
15(a)	Test data any whole number from 0 to 400 Data is within the range / acceptable / valid	**2**
15(b)	Test data any number below 0 / above 400 / letters / decimals Data outside the limits of acceptability / validity	**2**
15(c)	Test data of 0 or 400 Data at the limits of acceptability / validity	**2**

Question	Answer	Marks
16(a)	**Two** from: Short for web log Personal internet journal / online diary Owners' observations / opinions on a topic / single author Others can post comments Frequently updated by owner Postings tend to be in (reverse) chronological order Blog is a website	**2**
16(b)	**Two** from: Allows users to create / edit web pages using a web browser Many people can contribute / edit / update entries / collaborative Members of the group can contribute Holds information on many topics which can be searched Postings are not in chronological order Structure is determined by content / users Wiki is a website or software Wiki is usually objective	**2**

Question	Answer	Marks
17	To be marked as a level of response: Award one mark for each advantage / disadvantage but follow the rules below **Level 3** (7–8 marks): Must have achieved all of level 2 Award a mark for justification of at least one point raised Award a mark for a reasoned conclusion **Level 2** (4–6 marks): For level 2 there must be both advantages and disadvantages up to a max of six and achieved level 1 **Level 1** (1–3 marks): For level one there must be advantages or disadvantages up to max 3 **Level 0** (0 marks): Response with no valid content *Answers may make reference to, for example:* *Advantages:* No longer need to travel to the store saves cost of travelling to the store saves time in travelling to the store Saves time shopping as favourite lists can be produced Saves time shopping around different stores Can shop world-wide without leaving home Wider range of shops Customers can shop 24/7 Customers get more leisure as they save time shopping Customers can compare the prices of different stores without leaving the home Shopping can take place (using mobile devices) anywhere there is an internet connection Goods are delivered to the home; no need to collect them Can see the physical objects in store and then have the advantages of shopping online Customers can see the physical object and then select goods to match themselves Goods bought on line can be picked up in store at a convenient time No need to walk around the store as the customer can arrive and pick up the goods; saving time *Disadvantages* Makes people lazy/lack of exercise Over-reliance on computers Security issues: for example: hacking / stealing credit card details / virus attack / spyware attack / phishing / pharming Need to buy a computer / mobile system and internet connection Needs a reliable internet connection Goods can take time to arrive There may be delivery costs Can order items that you don't wish to order / mis-manage the ordering	**8**