Cambridge International AS & A Level

Cambridge Assessment International Education
Cambridge International Advanced Subsidiary and Advanced Level

INFORMATION TECHNOLOGY **9626/11**

Paper 1 Theory **May/June 2019**

MARK SCHEME

Maximum Mark: 90

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 2019 series for most Cambridge IGCSE™, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

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	Data becomes easier to interpret		4
	Coding of value judgements is always very accurate		
	The coding of data saves storage space	✓	
	Codes cannot be used in a relational database		
	It speeds up data entry	✓	
	All data can be coded		
	There are fewer mistakes when entering data	✓	
	Codes are not too complicated so there are never any errors on data entry		
	Validation is easier to perform on data	✓	
	Coded data makes the computer slower when searching for data		

Question	Answer		Marks
2	Laser printers produce very high quality output	✓	4
	A dot matrix printer would produce higher quality output than an inkjet printer		
	An inkjet printer would be slower at producing output than a dot matrix printer		
	Dot matrix printers use continuous stationery	✓	
	Dot matrix printers need the ink cartridge changed more frequently than inkjet printers		
	Dot matrix printers are very quiet which is important in a hotel reception area		
	A laser printer can operate in harsh conditions unlike a dot matrix printer		
	A laser printer toner cartridge is more expensive to buy than an inkjet cartridge	✓	
	Multi-part stationery is easier to use with laser printers than with dot matrix printers		
	Inkjet printers are cheaper to buy than dot matrix printers	✓	

Question	Answer	Marks
3	Six from: Data on its own has no meaning Only when it is interpreted does data take on meaning and become information Data consists of raw facts and figures Data has to be processed (into sets) to become information Data needs to have a context in order to become information Data can be in the form of numbers, characters, symbols, images as shown in the example (must have three) Information is what you get after a piece of data is processed and organised and is easily interpretable unlike the examples given Marks are available for explained examples of how data becomes information	**6**

Question	Answer	Marks
4	Six from: Unauthorised access to personal information The risk of being subject to grooming by those with whom they make contact on the internet The sharing / distribution of personal images without an individual's consent or knowledge Inappropriate communication / contact with others, including strangers Cyber-bullying by fellow students *Other problems* Access to unsuitable video / internet games An inability to evaluate the quality, accuracy and relevance of information on the internet Plagiarism and copyright infringement Illegal downloading of music or video files… …giving rise to the potential for excessive use which may affect the social and emotional development and learning of the student Access to illegal, harmful or inappropriate images or other content Must have at least two of each to gain full marks	**6**

Question	Answer	Marks
5	Six from: Both are used to connect computers together… …providing all the advantages of a computer network Both can be connected using copper cable or fibre optic cable Both are used to share files Data transfer rates are faster within a LAN Data transmission errors are fewer within a LAN WANs cover a larger geographical area than a LAN LAN can be more secure as can be confined to one building and not connected to outside users/hackers As WANs tend to consist of more complex systems so they are less fault tolerant LAN shares the information needed by each branch whereas WAN shares the information needed by all branches Must have at least one difference and one similarity to gain full marks	**6**

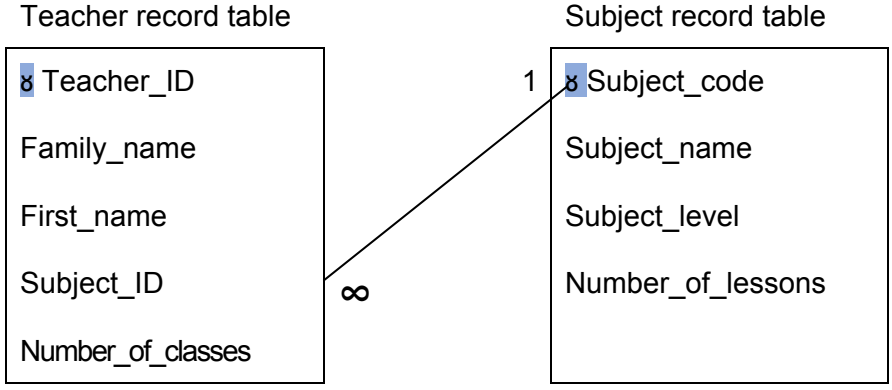
Question	Answer	Marks
6	Five from: Open source formats are often called free file formats if they are not covered by any copyrights/patents Open file formats can be used by both proprietary and open source software A proprietary file format has been created by a software company using a particular encoding scheme... ...designed by the company such that the decoding of this stored data is only easily done with software that the company itself has developed The specification of the data encoding format is usually kept secret It can be published but then its use is restricted through licences such that only the company itself/ users with licences may use it Open-source file formats are needed: Because not everyone can afford proprietary software When transferring data from one area to another as the computers being used may not have compatible software Archived proprietary files may be difficult to read by new software	**5**

Question	Answer	Marks
7	Four from: Allocates memory to software Sends data/instructions to printers Responds to input devices Opens and closes files on storage devices In multi-tasking/multi-programming systems allocates equitable processing time to each task/program Sends error messages to applications/users Handles user logins Handles file permissions/security settings Provides the interface between the user and the computer	**4**

Question	Answer	Marks
8(a)	Three from: Fraudster phones the victim pretending it is a call from the bank Fraudster claims that there has been some fraudulent activity on the customer's account/customer has made certain purchases – could they confirm? Often involves getting the customer to phone the bank Fraudster's computer redirects phone call to own phone Gives customer their bank details to get their confidence Gets customer to log on to bank's site and enter their details to transfer money to their new account which has been set up This account is actually the fraudster's own bank account	**3**
8(b)	Three from: Fraudster sends a cell phone text message to persuade customer to divulge their personal Information… …inviting the receiver to go to the fraudster's website They include a telephone number in the message that connects to an automated voice response system They include in the message something that demands the target's immediate attention such as… … "We confirm that you have signed up to our service. You will be charged $2 a day unless you cancel your order on this URL" The user then goes on to a seemingly legitimate website that asks them to "confirm/enter your personal financial information"	**3**

Question	Answer	Marks
9(a)	=LOCATE(“,”,A3)	
	=LOCATE(,A3) 1 mark	**1**
	“,” 1 mark	**1**
9(b)	=LEFT(A3,C3-1)	
	=LEFT()	**1**
	A3, as first item	**1**
	C3-1 as second item	**1**
9(c)	=RIGHT(A3,LEN(A3)-C3-1)	
	=RIGHT(A3,…)	**1**
	LEN(A3)	**1**
	-C3-1)	**1**
9(d)	Three from: Highlight J3:J12 Click on format then format cells Click on currency then select $ symbol Select 0 decimal places	**3**
9(e)(i)	Select A3:M12…	**1**
	…Sort in ascending order of column J…	**1**
	…Add a level and sort in descending order of column I	**1**
9(e)(ii)	Select A3:M12…	**1**
	…Sort in descending order of column J…	**1**
	…Add a level and sort in ascending order of column I	**1**

Question	Answer	Marks
10	Four from: Induction loop / pressure sensor… …sends signal/data to microprocessor Analogue to digital converter changes the analogue input to digital for the microprocessor to process Microprocessor compares reading with pre-set value If pressure is greater than/if inductance is different to preset value Microprocessor sends a signal to an actuator… …which raises the barrier Light sensor detects the break in the beam of light When the beam of light resumes the microprocessor sends a signal to an actuator… …which lowers the barrier	**4**

Question	Answer	Marks
11(a)		
	All Teacher records and Subject records with correctly titled tables	**1**
	Primary key fields identified	**1**
	Relationship line between correct two fields	**1**
	One to many indicated	**1**
11(b)	Four from: Teacher_ID is identified/selected as the primary key in Teacher Table and Subject_code is identified/selected as primary key in Subjects Table Click on relationships in (database) tools Click on add tables and select Teacher Table and Subjects Table Select Subject_code in Subject records table and connect it to Subject_ID in the Teacher records table Enforce referential integrity/Click on save changes	**4**

Question	Answer	Marks
12	Length check to no more or no less than/exactly 7 characters are entered	**1**
	Any suitable example of less than/greater than 7 characters	**1**
	Format check to ensure that all licence plates are two letters followed by three digits followed by two letters	**1**
	Any suitable example not consisting of two letters followed by three digits followed by two letters	**1**

Question	Answer	Marks
13	Eight from: Users with physical handicaps may not be able to use a keyboard or mouse For reasons of hygiene a doctor may not be allowed to touch a display or device so need to use gesture based interface Appropriate gestures is a more hygienic way to control the device Gestures may be a quicker way of initiating a response from a device Certain gestures may not be socially acceptable which is not a problem with the other interfaces Some gestures may be unintentional but still initiate a reaction from the device GUIs tend to be more accurate than relying on gestures CLI requires user to have to learn many commands unlike the others CLI commands are more difficult to edit CLI is more difficult to view different items on one screen when multitasking CLI processing speed tends to be faster than the others CLI uses less memory than the others CLI is less likely to change over time whereas GUIs tend to change regularly meaning less need to learn how to use a new system One mark is available for an appropriate opinion	**8**

Question	Answer	Marks
14	This question to be marked as levels of response: Level 3 (7–8 marks) Candidates will discuss the benefits and drawbacks of using the internet The information will be relevant, clear, organised and presented in a structured and coherent format There may be a reasoned conclusion/opinion Specialist terms will be used correctly and appropriately Level 2 (4–6 marks) Candidates will discuss the benefits and drawbacks of using the internet although development of some of the points will be limited to one side of the argument For the most part, the information will be relevant and presented in a structured and coherent format Specialist terms will be used appropriately and for the most part correctly Level 1 (1–3 marks) Candidates will present benefits or drawbacks of using the internet There will be little or no use of specialist terms Answers may be simplistic with little or no relevance Level 0 (0 marks) Response with no valid content. Candidates may refer to e.g. Benefits Internet tends to be up to date Internet has vast amounts of information/ wide range of information/ wide variety of sources Use of search engines makes it quicker to find information than looking in books Multimedia sources are available on the internet unlike text books Interactive sites can be found on the internet unlike text books Drawbacks Danger of accessing inappropriate websites. Can take long time to find required information Can access biased/inaccurate websites Lack of expertise leads to inefficient searching Easy to plagiarise information The internet is not regulated Internet provides a variety of answers so it is difficult to decide which answer is correct	**8**