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Cambridge Assessment International Education

Cambridge IGCSE™

INFORMATION & COMMUNICATION TECHNOLOGY **0417/13**

Paper 1 Theory **October/November 2022**

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 2022 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

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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.

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Question	Answer	Marks
1(a)	portrait	**1**
1(b)	a footer	**1**
1(c)	an orphan	**1**
1(d)	centred	**1**

Question	Answer	Marks
2	**Three** from: Light Temperature Humidity/moisture pH CO_2	**3**

Question	Answer	Marks
3	Sound Video	**2**

Question	Answer	Marks
4(a)(i)	Knowledge base	**1**
4(a)(ii)	Inference engine	**1**
4(a)(iii)	Interactive user interface	**1**
4(b)	**Six** from: An Interactive user interface appears The expert system asks questions about the illness Yes and No type answers to the questions Answers lead to other questions The inference engine searches… …the knowledge base… …uses the rules base Probabilities/possibilities of diagnoses and treatments are displayed Displays the ways it achieved the solutions/conclusions	**6**

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>5(a)</td><td>
<table>
<tr><th></th><th>Control (✓)</th><th>Measurement (✓)</th><th>Spreadsheet (✓)</th><th>Wordprocessing (✓)</th></tr>
<tr><td>Producing menus for the restaurant</td><td></td><td></td><td></td><td>✓</td></tr>
<tr><td>Calculating the cost of each of the meals</td><td></td><td></td><td>✓</td><td></td></tr>
<tr><td>Automatically turning on the fans when the room gets too hot</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>Monitoring the temperature in the restaurant</td><td></td><td>✓</td><td></td><td></td></tr>
</table>
</td><td>4</td></tr>
<tr><td>5(b)</td><td>
Six from:
Advantages
Answers are more honest as they are anonymous
Staff can remain anonymous whereas the observation cannot be anonymous
Can be sent to all the staff at the same time whereas the observer may only see one part of the operation
Questionnaires can be filled in at any time whereas observations can only be carried out when the restaurant is working
Analysis of questionnaire can be carried out automatically whereas observations the observer must produce notes
Observer may miss elements whereas questionnaires are filled in by the users

Disadvantages
Users do not always complete the questionnaire and hand it back but observation watches users working
Work rate can be influenced by being observed but this does not apply to questionnaires
More chances of incorrect data if question not understood
The observer can see exactly how the system works well and not so well whereas a questionnaire takes the users viewpoint

To gain full marks the discussion must have correct answers for both advantages and disadvantages
</td><td>6</td></tr>
</table>

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Question	Answer	Marks
6(a)	**png** **One** from: Raster/full colour digital photos Images with a transparent background **gif** Moving/animated image	**2**
6(b)	**Three** from: Same images saved as a GIF loads/reads faster than PNG GIF uses limited colours (256) whereas PNG uses a bitmap of colours GIF can have moving and static images whereas PNG only have static images PNG can have transparent background PNG is compressed PNG is lossless	**3**

Question	Answer	Marks
7(a)	Presence **ISBN** Lookup **Book_type** Range **Cost** Length **Department**	**4**
7(b)	ISBN	**1**
7(c)	**Six** from: **Benefits** Digital therefore can easily be used in other documents/software Instant access on many devices More accessible for disabled Quicker to search digital books **Drawbacks** Health issues with using a computer to read the book Cannot be written in braille May require extra software/reader Never own the book as it is only data Need to purchase a device to read them Needs the internet to download the book **To gain full marks the description must have correct answers for both benefits and drawbacks**	**6**

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Question	Answer	Marks
8(a)	**Eight** from: **Positives** Data can be read/identified faster Data can be read/identified by electronic comparison therefore relative higher level of accuracy Increases security as the hand is unique whereas a four-digit code easier to guess Can't forget your handprint, unlike a code The person must be present to enter the building **Negatives** If the hand is damaged, then may not work More difficult to change biometric data Only works with one hand therefore difficult for right-handed people Recognition could be slower as system is more complex Harder to set up the biometric system Takes longer to add new people/change biometric data to the system Biometrics can use a lot of memory to store the data Intrusive as personal details must be stored in biometrics More likely to be affected by the environment **To gain full marks the discussion must have correct answers for both positives and negatives**	**8**
8(b)	**Two** from: Fingerprint Vein geometry Retina Iris Face	**2**

Question	Answer	Marks
9	**Six** from: Abide by the laws within the country that affect the general use of emails Use acceptable language Abide by copyright Follow local guidelines set by an employer/schools Use appropriate security Follow netiquette Respect other people/s/own privacy Be aware of the need for password protection Be aware that email accounts can be Illegally accessed	**6**

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Question	Answer	Marks
10(a)	**Optical** CD ROM/DVD ROM, CD R/DVD R, CD RW/DVD RW, DVD RAM, Blu-ray discs/CD/DVD **Magnetic** Fixed/portable/removable hard disks/magnetic tape. **Solid state** Memory stick/flash card	**3**
10(b)	**Three** from: Optical data is stored using laser whereas Magnetic data is stored using magnetic fields Optical disc storage is serial whereas Magnetic disk storage is direct/sectors and tracks Magnetic storage is affected by magnetic fields whereas Optical storage is not Magnetic media tends to store more data than optical media Optical storage is more robust Optical has a faster data access/transfer speed	**3**

Question	Answer	Marks
11(a)	**Two** from: Type in a web address Use a search engine Type what you need on the search bar	**2**
11(b)	**Four** from: **The internet** Network of Networks//WAN It is the infrastructure Contains email, FTP **The World Wide Web** Collection of websites Accessed from the internet Service of the internet **To gain full marks the explanation must have correct answers for both the internet and World Wide Web**	**4**

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Question	Answer	Marks
12(a)	Presentation Defines the format of a web page/individual elements through styling Behaviour To enter scripting language to a web page/individual element	**4**
12(b)	**Three** from: Allows greater control over page layout Positions elements/data on the page Conveys relationships between items Displays data	**3**

Question	Answer	Marks
13	**Six** from: *Examples* Do not give away personal information Do not use your real name as your username Do not use your face image as your avatar If you receive messages from unwanted users block and report them Do not meet unknown users in real life//use a chaperone Do not give financial information to other users If you receive unwanted and abusive messages report the sender of the messages When sending messages always us appropriate language Think before you reply to a message	**6**

Question	Answer	Marks
14	**Three** from: To adjust pagination To avoid orphans/widows To improve layout on the page To allow for the change of orientation of pages in the document To enable to start a new chapter on a new page	**3**

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>15(a)</td><td>Use of the Cloud
The cloud does not require a physical device
Storage size is not an issue with the cloud

Cloud is operated by a third party therefore security could be an issue
Require a stable internet to access to upload and download the data

Portable device: pen drive/Hard drive
The device uses USB port therefore it is easy to plug in
Does not require access to the internet to access the data

May be lost/damaged in transit
Magnetic drives can be affected by strong magnets/x rays
Limited number of read/writes

Email as an attachment
Do not require physical device

Require access to the email account both at home and in the office
The memory size could be an issue
Requires the use of the internet</td><td>6</td></tr>
<tr><td>15(b)</td><td>Max two from:
Scrambling data
Changing plain text into cipher
Encryption converts text into a meaningless form

Max two from:
To prevent data/information from being understandable to people who access/intercept the data
Protects data</td><td>3</td></tr>
<tr><td>15(c)</td><td>
<table>
<tr><th></th><th>Compressed hours (✓)</th><th>Flexible hours (✓)</th><th>Job sharing (✓)</th><th>Part-time working (✓)</th></tr>
<tr><td>An employee works a full day but negotiates with the employer the start and end times</td><td></td><td>✓</td><td></td><td></td></tr>
<tr><td>An employee works the same time as a full week but in fewer days</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>An employee works for fewer hours than a full-time employee</td><td></td><td></td><td></td><td>✓</td></tr>
</table>
</td><td>3</td></tr>
</table>

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