


Marking Schemes

This document was prepared for markers' reference. It should not be regarded as a set of model answers. Candidates and teachers who were not involved in the marking process are advised to interpret its content with care.

General Notes on Marking

1. Teachers are strongly advised to conduct their own internal standardisation procedures using the marking scheme before the actual marking begins. After standardisation, teachers should adhere to the marking scheme to ensure a uniform standard of marking within the school.
2. The marking scheme may not exhaust all possible answers for each question. Teachers should exercise their professional discretion and judgment in accepting alternative answers that are not in the marking scheme, but are correct and well-reasoned.
3. The following symbols are used:

- ✕ This symbol indicates a wrong or unacceptable answer.
-  Shaded words, figures or ideas are not essential for the candidate to be awarded the point.
- / A single slash indicates an acceptable alternative within an answer.
- + A plus sign indicates that there are two pieces of information and the second part will be awarded points only when the first part is correct.

4. In questions asking for a specified number of reasons or examples etc. and a candidate gives more than the required number, the extra answers should not be marked. For instance, in a question asking candidates to provide two examples, and if a candidate gives three answers, only the first two should be marked.

Paper 1 (Section A)

Question No.	Key	Question No.	Key
1.	C (68%)	21.	A (70%)
2.	B (67%)	22.	A (47%)
3.	A (62%)	23.	D (80%)
4.	D (55%)	24.	C (65%)
5.	B (81%)	25.	B (88%)
6.	A (88%)	26.	D (81%)
7.	A (48%)	27.	B (73%)
8.	D (79%)	28.	B (33%)
9.	B (61%)	29.	C (87%)
10.	D (56%)	30.	A (66%)
11.	C (38%)	31.	C (73%)
12.	D (24%)	32.	C (80%)
13.	C (65%)	33.	B (79%)
14.	C (45%)	34.	D (67%)
15.	B (64%)	35.	C (49%)
16.	A (47%)	36.	A (83%)
17.	C (89%)	37.	D (93%)
18.	A (86%)	38.	B (72%)
19.	D (60%)	39.	B (81%)
20.	B (81%)	40.	*

* This item was deleted.

Note: Figures in brackets indicate the percentages of candidates choosing the correct answers.

General note on item deletion

It is normal for the HKEAA to delete a small number of items from its multiple-choice question papers if they prove unsatisfactory. In practice, there are a number of reasons why this is considered necessary. By far the most common reason for deleting an item is that the item fails to discriminate between weak and able candidates – in other words, the majority of the candidates involved had to rely on guesswork in answering that question. If such an item is retained, the measurement process is rendered less effective. Where items have been deleted in the live papers, they are still included in this series of publications. They are indicated as deleted items. Such items may be discussed in the corresponding examination reports.

Paper 1 (Section B)

	Marks
1. (a) (i) Touch screen: It is easy for students to operate. / It occupies less space. / It makes for easier hand-eye coordination.	1
Keyboard and mouse: The way that students could input is diversified (e.g. mouse-over) / The input speed could be faster. / The cost is lower. / It is more ergonomic friendly.	1
(ii) Speaker (headphone) – Pronounce English vocabularies. / Play videos.	1
(b) A network interface card is installed in each workstation to manage the data sent and the data received through the network cables.	1
Network cables are the communication links between the network interface cards and switches.	1
Switches are used to manage the data transmission between the workstations and servers.	1
(c) The learning materials contain multimedia elements that can help students learn better. The learning progress can be tailor-made for individual students during the learning process. The learning progress can be interactive (e.g. searching) that can help students learn better. Appropriate feedback or response can be delivered instantly.	1×2
(d) (i) Students can check a number of their email accounts in one go. / Students can create a copy of email in another email account for backup.	1
(ii) Minimise the size of the email in transmission or storage. / The size of the email can be neglected.	1
(iii) The hyperlink may become invalid due to a structural change or update in the platform after a period of time.	1

	Marks
<p>2. (a) (i) The virus definition will be updated. Some additional features will be provided. Some program bugs will be fixed. The old version of the software may not be compatible to the OS of the computer any more.</p> <p>✗ It keeps the software in a good condition to protect the computer. ✗ It protects the normal operation of the computer from computer virus. ✗ After the update, it can scan computer virus in detail.</p>	1×2
<p>(ii) Peter can install a <u>firewall</u> in the school network to prevent students from installing unauthorised programs / prevent hacking / authorize network traffic / authenticate users / encrypt data transmission / support network segmentation / fix security vulnerabilities / support logging and security audit / block some IP addresses from harmful web sites. (Reference: IT Security Guidelines, OGCIO)</p>	1 + 1
<p>(b) (i) Batch processing: Peter collects and accumulates tasks for a period of time and does all in one go. ✗ Peter will work at specific time and location such as Saturday morning. ✗ Peter can install software at the fastest speed.</p>	1 + 1
<p>(ii) Linux fully supports a command line interface while the others do not. (different user interface) MacOS usually only run on proprietary hardware. (hardware support) They have different types of software licence. (licence) They have different types of memory management methods. (memory management) They have different types of file management methods. (file management) ✗ different types of programming language support/used, ease of use, types of application software on the platform, support from the OS companies / communities</p>	1×2
<p>(c) (i) Education, age, disability, geographical location, household size and type, gender, racial (Reference: https://stats.oecd.org/glossary/detail.asp?ID=4719)</p>	1×2
<p>(ii) Improve the access to ICT equipment (hardware) Improve the access to the Internet Improve the access to ICT knowledge (learning)</p> <p>✗ Educate the public that the benefit of technology and how technology can help improve human lives.</p>	1×2

		Marks
3. (a)	AVI: It supports a better video quality.	1
	MP4: It supports a smaller file size of video. / It is compressed. / It supports streaming. / It supports more portable devices/operating systems. (HTML5 supports MP4 only) / It supports subtitle / menu.	1
(b)	The number of hours = $60 \times 1024 / 11 / 60$ = 93 (93.1 / 93.09 acceptable)	1 1
(c) (i)	Compression has been already applied to the videos because of their video format.	1
(ii)	Concept of fragmentation for hard disk ① (e.g. It rearranges the data fragments close together.) Effect of the rearrangement of data fragments ① (e.g. It speeds up the access of files./ It does not increase free space./It does not change the file size)	1 1
(iii)	Use a different video compression method with a lower frame rate / a lower image resolution / a higher compression ratio / a smaller colour depth..	1
(d)	Videos can be instantly played on clients without downloading the entire video. / It saves storage space as there is no need to store the entire videos. Limitation (e.g. bandwidth, download speed, network traffic, stable Internet connection, number of clients, it does not support AVI, video cannot be downloaded for later watching)	1 1
(e)	Yes, sender can encrypt the message with the receiver's public key and the receiver can decrypt the message by his own private key. ① the use of encryption / key ① correct use of public key and private key(receiver's public key to encrypt and receiver's private key to decrypt)	2*

	Marks
4. (a) There are two identical teacher names (Greg Li) in the last two records.	1
(b) A 90 B 35	① SUM ① GROUP 2
(c) (i) 10102	1
(ii) Type check (character) Range check Presence check	1×2
(iii) Double entry, printout for checking. / Verification	1
(d) (i) =AVERAGE (D2:D6)	1
(ii) =COUNTIF (C52:C56, C11) ① ① COUNTIF ()	2
(e) ① at least one page for each activity ① a clear heading/topic on each slide ① proper design for slides with text & images	3
5. (a) Any integer small than 1 or greater than 100 Any integer between 1 and 100 inclusive, except 19 19	1 1 1
(b) (i) GUESS < ANSWER GUESS > ANSWER K + 1 K = 5 or K > 4 or K >= 5	1 1 1 1
(ii) As the loop may end due to K = 5, which does not mean the user wins. Even if a user cannot correctly guess the answer, the message will be displayed anyway.	1
(c) (i) Other people can - freely use the program - change the program code to improve the game (read/modify) - freely distribute the game	1×2
(ii) Control the brightness of the screen. (filter) Enlarge the font size. (accessibility function) Use voice input/output.	1×2

* Marking criteria

- ② Illustrate a comprehensive and logical answer
- ① Illustrate a relevant answer