Candidates' Performance

Paper 1A

This section consisted of 40 multiple-choice questions. Candidates' performance was generally satisfactory with an average of 26 questions answered correctly. They performed better in 'Social Implications' and worse in 'Information Processing.' Post-examination item analysis revealed the following:

1. In Question 1 and Question 6, Just below half of the candidates demonstrated a comprehensive understanding of word processing. They understood how to create formatted documents effectively and suitably for specific tasks.

Q.1 Which of the following can effectively format a document in word processing software?

(1) Setting the default font as the most frequently-used font type and font size
(2) Using pre-set styles for headings
(3) Enabling the auto-correction function

* A.	(1) and (2) only	(40%)
B.	(1) and (3) only	(11%)
C.	(2) and (3) only	(7%)
D.	(1), (2) and (3)	(42%)

Q.6 Tim uses the 'table of contents' feature in word processing software, as shown below. When inserting a new chapter, _____.

Table of Contents

Chairman's message 1
Introduction 5
Background 12

A.	Tim has to input a formula for calculating the page numbers	(2%)
B.	Tim has to input the chapter name in the table of contents	(27%)
* C.	the page numbers can be updated accordingly	(50%)
D.	the new chapter will be inserted as the last chapter	(21%)

2. Question 3 tests the understanding of ASCII codes and binary numbers, which are the fundamental knowledge of ICT. Only about half of the candidates answered correctly. Candidates were weak in data representation, which is essential for understanding the mechanism of the data operations in a computer.

Q.3 The ASCII codes for the characters 'X' and 'Z' in hexadecimal are _____ and 5A respectively.

A.	3A	(25%)
B.	3C	(14%)
* C.	58	(51%)
D.	59	(10%)

3. Question 11 tests candidates' knowledge of database software. About half of the candidates thought that option (2) or (3) was correct. It seems that weaker candidates probably lacked practical experience in using database software and did not understand the basic use of a data entry form.

Q.11 What is/are the major advantage(s) of using a form for data entry in database software?

(1) It reduces input errors.
(2) It shortens the execution time of SQL statements.
(3) It requires less storage space.

* A.	(1) only	(52%)
B.	(2) only	(24%)
C.	(1) and (3) only	(12%)
D.	(2) and (3) only	(12%)

4. Question 14 tests candidates' knowledge and understanding of scanners. Although almost all candidates identified the colour depth which is the common specification of a scanner, only a third of the candidates answered correctly. Not only should candidates be able to use scanners for scanning documents and photos, but they also should be able to understand all the specifications of a scanner and their effects on the scanning operation.

Q.14 Which of the following can be the specifications of a scanner for scanning documents and photos?

(1) 802.11n supported
(2) 24-bit colour depth
(3) Built-in 64 MB RAM

A.	(1) and (2) only	(26%)
B.	(1) and (3) only	(6%)
C.	(2) and (3) only	(32%)
* D.	(1), (2) and (3)	(36%)

5. Question 25 tests candidates' ability to integrate the knowledge of LAN and WAN. From the response figures, the majority of the candidates thought that a Wi-Fi network was unrelated to a LAN. Broadly speaking, a Wi-Fi network is a wireless LAN based on the IEEE 802.11 family of standards and they are closely related. Candidates should strengthen their understanding of different types of networks and connecting devices involved.

Q.25 Mary can use her mobile phone in her office to control the appliances connecting to a Wi-Fi network at home. Which of the following are involved?

(1) LAN
(2) Internet
(3) Access Point

A.	(1) and (2) only	(7%)
B.	(1) and (3) only	(13%)
C.	(2) and (3) only	(45%)
* D.	(1), (2) and (3)	(35%)

Paper 1B

Question Number		Performance in General
1	(a)	Satisfactory. A high proportion of the candidates gave the correct network devices and the uses of the network for John. However, weaker candidates wrongly gave their answers related to the Internet access.
	(b)	Good.
	(c)	Very good. Weaker candidates wrongly related the issue to the use of a monitor, whereas the question was only about the use of a tablet computer. It seems that they just recited the contents about the good practices from the textbook and did not relate their answer to the issue raised in the question.
	(d)	Fair. Weaker candidates thought that encryption was enforced on the contents of the web site or the communication link between the user and the web site so as to prevent hackers from obtaining the information. Their understanding of SSL technology seems to be narrow and incorrect.
2	(a)	Fair. Only about a quarter of the candidates were able to demonstrate the basic knowledge of various computer networks. Weaker candidates used simple words such as 'faster' and 'easier' to describe a wireless network which were not sufficient to illustrate the benefits of using a wireless network. They also wrongly answered that a wireless network had a wider coverage than a wired network. It seems that they did not have a good understanding of how a computer network is built for data communication.
	(b)	Satisfactory.
	(c)	Fair. Only about a quarter of the candidates were able to give what the two CPU specifications represented. Weaker candidates wrongly stated that 5 GHz and 10 cores were the number of instructions to be executed, showing that their limited understanding of the technical issues about a CPU.
	(d)	Good.
	(e)	Good. Almost all candidates gave at least one reason to support their answer.
	(f)	Poor. The transfer of a file from a computer system to another depends on the network protocol, not the operating systems they use. Weaker candidates thought that the same file format was the key to the transfer of a file. It seems that their understanding of the communication protocol in networking was weak.
3	(a)	Satisfactory. Weaker candidates changed the contents of `A[1]` in (i). They were not aware of the terminated condition on the initial content when the `REPEAT` loop ended with no change in the content of `A[1]`.
	(b)	Satisfactory. Only about a quarter of the candidates correctly completed the algorithm. Candidates in general were weak in using flag-controlled looping to modify the algorithm.
	(c)	Satisfactory.

Question Number		Performance in General
4	(a)	Satisfactory. A pull-down menu is used in both designs and hence the argument of using such input design to support the choice was weak. Candidates should make an argument by comparing the differences between the two designs.
	(b)	Good. Almost all candidates answered the valid `IDNO`. About half of the candidates were able to give a correct verification check in (ii). Weaker candidates just named some common validation checks, such as checksum, that were not related to the given database table.
	(c)	Good. Candidates showed a good understanding of manipulating SQL statements.
	(d)	Satisfactory. Candidates showed an adequate understanding of manipulating spreadsheet statements.
	(e)	Satisfactory. In (e)(ii), candidates should describe the purpose of the formulae. No mark was given for merely describing the content of the formulae.
5	(a)	Fair. About a third of the candidates answered correctly. Candidates were very weak in understanding the binary system for data representation.
	(b)	Very good.
	(c)	Satisfactory. A very high proportion of the candidates were able to give the correct answers for (i) and (ii). In (iii), writing the bit pattern as the answer would not be awarded any mark.

Paper 2A

Question Number	Popularity
1	93%
2	74%
3	88%
4	45%

Question Number		Performance in General
1	(a)	Very good. A very high proportion of the candidates provided the correct SQL statement.
	(b)	Good. Weaker candidates did not use the `COUNT` function in their answers.
	(c)	Very good.
	(d)	Excellent. Nearly all candidates were able to interpret the SQL statement and give the purpose.
	(e)	Good.
	(f)	Satisfactory. Weaker candidates did not provide sub-queries and the `MAX` function in their answers.
2	(a)	Poor. Only a small number of the candidates were able to identify the candidate keys of compound attributes. Some candidates wrongly thought that `RID` was sufficient to act as a candidate key.
	(b)	Satisfactory.
	(c)	Satisfactory.
	(d)	Satisfactory. In general, candidates identified and explained the entity integrity problem properly. Weaker candidates were not able to explain the referential integrity problem clearly.
3	(a)	Satisfactory. Candidates were able to provide the pros and cons of the '`NOT NULL`' constraint properly. Weaker candidates did not use `UNIQUE` in answering the constraint.
	(b)	Satisfactory. A quarter of the candidates completed the SQL statement with `FOREIGN` and `REFERENCES` correctly.
	(c)	Satisfactory. Weaker candidates did not give the advantages of the designs properly and wrote some brief and general descriptions about the proposals. Candidates should answer (ii) and (iii) from a technical point of view.
	(d)	Good. Candidates in general were able to provide an improved design that met the requirements. Weaker candidates did not write the proper annotation of their designs.
4	(a)	Poor. Only a quarter of the candidates answered correctly. Candidates gave some deliverables irrelevant to the context or something that were not deliverables at all.
	(b)	Fair. Weaker candidates provided answers which were not related to data conversion.
	(c)	Poor. Candidates were weak in understanding the database application development lifecycle.
	(d)	Fair. Weaker candidates attempted to describe sales strategies using data mining techniques but did not involve the data in the chain stores properly.
	(e)	Poor. A high proportion of the candidates had difficulty in describing the advantages of having candidate keys in database tables.

Paper 2B

Question Number	Popularity
1	58%
2	97%
3	73%
4	72%

Question Number		Performance in General
1	(a)	Good. About a quarter of the candidates did not realise the limitation of the two interfaces of the router.
	(b)	Satisfactory.
	(c)	Satisfactory. A high proportion of the candidates were able to state two advantages of using DHCP. Weaker candidates were unable to demonstrate an adequate understanding of the network setting attributes of the router to support DHCP.
	(d)	Poor. A very high proportion of the candidates were unable to demonstrate an adequate understanding of the use of the `PING` command to check the network connectivity.
2	(a)	Good.
	(b)	Very good.
	(c)	Good. About a quarter of the candidates just named the devices involved without describing the applications of the communication modes.
	(d)	Good.
	(e)	Excellent.
	(f)	Poor. A very high proportion of the candidates were not aware that both WiFi services are using the same frequency.
3	(a)	Fair.
	(b)	Fair. Weaker candidates had difficulty in setting the IP ranges and subnet masks.
	(c)	Fair.
	(d)	Good. In (ii), about half of the candidates were able to state a permission other than 'Read' and 'Write'. In (iii), weaker candidates were unable to demonstrate an adequate understanding of which RAID-0 increases 'Read' and 'Write' performance by interleaving data across two or more drives.
4	(a)	Fair.
	(b)	Satisfactory. A high proportion of the candidates only identified the length limitation of UTP cable, but not other possible reasons such as external interference.
	(c)	Fair.
	(d)	Fair. A high proportion of the candidates correctly identified that the same SSID is needed, but about a quarter of the candidates were unable to provide one more setting, such as encryption.
	(e)	Fair. About two thirds of the candidates demonstrated an adequate understanding of network design and correctly identified the locations of the various network devices. About a quarter of the candidates did not realise that the switch should be placed in the office close to the three computers so as to reduce the number of cable connections.

Paper 2C

Question Number	Popularity
1	79%
2	61%
3	91%
4	70%

Question Number		Performance in General
1	(a)	Good. The majority of the candidates were able to give out the differences between the two options in the video recording setting. However, about a quarter of the candidates only pointed out the differences between the video specifications but not the differences between the qualities in the two options.
	(b)	Satisfactory. Candidates in general were familiar with the concept of the relationship between the file size and the bit rate. However, about 60% of the candidates were not able to correctly estimate the highest bit rate that can be adopted. Weaker candidates did not convert 1 byte into 8 bits in their calculation.
	(c)	Satisfactory. About a third of the candidates wrongly named the cost factor as one of the reasons to support publishing videos on a video sharing platform without any explanation. From candidates' responses to (iii), a high proportion of them seems lacked practical experience in sharing videos using embedding codes.
	(d)	Satisfactory. About half of the candidates were able to name and describe a potential problem of the input design and suggested appropriate designs to address the problem.
	(e)	Poor. Candidates in general showed that they were not familiar with using CSS to build a web site. Only about 15% of the candidates were able to connect CSS with the consistency or unification of the design of web pages in the web site.
2	(a)	Fair. About 40% of the candidates were able to clearly name two reasons to support the creation of a web site instead of a mobile application. Only a very small number of the candidates pointed out that the content can be updated or maintained more easily. The majority of the candidates were able to suggest using a pop-up window but did not mention how to connect it to the machine clock to count for 1 hour.
	(b)	Poor. About 15% of the candidates correctly answered and clearly explained the file size of the image will remain unchanged. Only a very small number of the candidates were able to name an image attribute that can be changed in the HTML code. About a quarter of the candidates were able to use an image map as an interactive web design in (iii).
	(c)	Fair. About half of the candidates were able to answer the client-side scripts but only about 20% of the candidates were able to answer the server-side scripts. A very small number of the candidates correctly used 'to prevent from getting answers in the client-side scripts' as their answer.
	(d)	Good. About three quarters of the candidates demonstrated sound knowledge of the different levels of a domain name.
	(e)	Fair. Less than half of the candidates were able to give QR code as one of the answers and only a small number of the candidates were able to use URL shortening to create a shorter URL.

Question Number		Performance in General
3	(a)	Satisfactory. About 65% of the candidates were familiar with the MIDI file format but only half of them were able to give an advantage other than file size.
	(b)	Good. About 40% of the candidates were able to write at least one attribute of the audio when combining the audio channels. Candidates in general were familiar with the concept of lossy compression and lossless compression.
	(c)	Satisfactory. About half of the candidates were able to estimate the file size of the MP3 file. About half of the candidates were able to answer how two channels and/or a broader sound frequency range will provide better sound quality and/or listening experience.
	(d)	Satisfactory. Only about 15% of the candidates were able to correctly calculate the maximum number of concurrent visitors allowed. A small number of them wrongly used a round-up figure instead of a round-down figure. About three quarters of the candidates correctly answered that when deleting one frame for every two frames, the duration and the file size of the video will also be halved. However, only about 20% of the candidates answered correctly the last part.
4	(a)	Good. The majority of the candidates were able to select an appropriate web design feature for each input. About 85% of the candidates demonstrated that they had experience in putting an interactive calendar for the date input in the web page design. More than half of the candidates demonstrated the use of cookies and were able to give examples of good browsing experiences. However, a small number of the candidates wrongly mentioned the benefit to the company instead of to the visitors.
	(b)	Satisfactory. About 40% of the candidates showed that they had sound knowledge in client-side scripting. However, about 30% of them were found not familiar with the swapping of two variables.

Paper 2D

Question Number	Popularity
1	80%
2	95%
3	38%
4	87%

Question Number		Performance in General
1	(a)	Excellent.
	(b)	Very good. The majority of the candidates demonstrated a basic understanding of the binary search concept and were able to apply it to improve the performance of linear search on a sorted array.
	(c)	Very good. The program uses binary search to facilitate counting in a sorted array. The majority of the candidates were able to handle the boundary cases of the program.
2	(a)	Very good.
	(b)	Very good.
	(c)	Satisfactory. About half of the candidates demonstrated an adequate understanding of the stack concept and were able to use stack operations in the `GET` pseudocode.
	(d)	Very good.
3	(a)	Excellent.
	(b)	Poor. Only a small number of the candidates were able to provide a formula with correct parameters to copy the content of a one-dimensional array to a two-dimensional array.
	(c)	Satisfactory. About two thirds of the candidates were able to trace and understand the check bit subprogram `Add1`.
	(d)	Fair. Only about a quarter of the candidates explained precisely the major difference between procedural languages and object-oriented languages. Only about a quarter of the candidates were able to identify the advantages of using interpreters and compilers
4	(a)	Excellent.
	(b)	Good.
	(c)	Fair. About half of the candidates were able to call the subprograms provided in the previous steps to merge all overlapping lines in a collection of horizontal lines.
	(d)	Fair. About half of the candidates were able to identify the new stage and flow in a waterfall model based on the system specification provided in the question.

Popularity of the Elective Part

Option	Popularity (%)
A. Databases	13
B. Data Communications and Networking	1
C. Multimedia Production and Web Site Development	59
D. Software Development	27