HONG KONG EXAMINATIONS AND ASSESSMENT AUTHORITY
HONG KONG DIPLOMA OF SECONDARY EDUCATION EXAMINATION

INFORMATION AND COMMUNICATION TECHNOLOGY PAPER 1

(Sample Paper)

Time allowed: 2 hours
This paper must be answered in English.

GENERAL INSTRUCTIONS

1.   There are **TWO** sections, A and B, in this Paper. Section A carries 40 marks and Section B carries 60 marks. You are advised to finish Section A in about 48 minutes.

2.   Section A consists of multiple-choice questions in this question book. Section B contains conventional questions printed separately in Question-Answer Book B.

3.   Answers to Section A should be marked on the Multiple-choice Answer Sheet while answers to Section B should be written in the spaces provided in Question-Answer Book B. **The Answer Sheet for Section A and the Question-Answer Book for Section B must be handed in separately at the end of the examination.**

SECTION A (MULTIPLE-CHOICE QUESTIONS)

INSTRUCTIONS FOR SECTION A

1.   Read the instructions on the Answer Sheet carefully. Stick a barcode label and insert the information required in the spaces provided.

2.   When told to open this book, you should check that all the questions are there. Look for the words **'END OF SECTION A'** after the last question.

3.   All questions carry equal marks.

4.   **ANSWER ALL QUESTIONS.** You are advised to use an HB pencil to mark all the answers on the Answer Sheet, so that wrong marks can be completely erased with a clean rubber.

5.   You should mark only **ONE** answer for each question. If you mark more than one answer, you will receive **NO MARKS** for that question.

6.   No marks will be deducted for wrong answers.

> Not to be taken away before the end of the examination session

There will be 40 questions in 2012 examination paper. For this sample there are only 20 sample questions for illustration purpose.

(2005 CECIT 1A Q.1)

1. To create a web page with Traditional Chinese and Simplified Chinese characters, which of the following methods is/are possible?

    (1) Use Unicode on the web page.
    (2) Use both BIG5 and GB on the web page.
    (3) Use BIG5 to represent traditional Chinese characters and image files to display simplified Chinese characters.

    A. (1) only
    B. (2) only
    C. (1) and (2) only
    D. (1) and (3) only

(2005 CECIT 1A Q.4)

2. The hardware address of a network device consists of 48 bits. Which of the following is a valid address in hexadecimal numbers?

    A. 00E0071944A0
    B. 0A23B5
    C. 1E07FG124372
    D. 398A7E9412110408

(2005 CECIT 1A Q.5)

3.

PROGRAMME		
Talk 1	*The Examination System in Hong Kong* Dr. Chan Tai Man（陳大文博士）	15 minutes
Talk 2	*The Examination System in China* Dr. Kwai Wing（季榮博士）	20 minutes
Talk 3	*The Examination System in Singapore* Dr. Sen Kit（孫潔博士）	25 minutes
Talk 4	*The Examination System in South Korea* Dr. Lee Kim King（李金京博士）	30 minutes
	Total :	90 minutes

When using a presentation software package, which of the following may be used to prepare the above slide efficiently?

    (1) sorting
    (2) borders
    (3) copy and paste
    (4) find and replace

    A. (1) and (2) only
    B. (2) and (3) only
    C. (3) and (4) only
    D. (1) and (4) only

(2005 CECIT 1A Q.9)
4. Which of the following is **not** a specification of a CPU?

 A. 2.8GHz Clock speed
 B. 2MB Cache memory
 C. 4.2ms Rotation latency
 D. 32-bit word size

(2005 CECIT 1A Q.12)
5. Which of the following is **not** open source software?

 A. Internet Explorer
 B. Apache HTTP Server
 C. Fedora Linux
 D. Open Office

(2005 CECIT 1A Q.13)
6. When compared with normal PCs, which of the following statements about Personal Digital Assistants (PDA) is correct?

 A. Only small files can be stored.
 B. The operating system requires less system memory to operate.
 C. The operating system should be re-installed when the system crashes.
 D. Data must be stored in an external flash memory card.

(2005 CECIT 1A Q.23)
7. Which of the following actions should **not** be carried out when constructing a web page?

 A. Insert more than one hyperlink.
 B. Compile the HTML file.
 C. Insert multimedia elements but not photos.
 D. Use .htm as the filename extension.

(2005 CECIT 1A Q.31)
8. The following algorithm shows how a vending machine works:

Step 1: Wait to receive a coin.
Step 2: If the coin is not $1, $2, $5 or $10, eject it.
Step 3: If $6 or more is deposited, do steps 4 and 5.
Step 4:   Release a can of lemon tea.
Step 5:   Reduce the deposit by $6.
Step 6: Eject the deposit.
Step 7: Do step 1.

Which of the following statements about the algorithm is true?

 A. A can of lemon tea will cost less than $6.
 B. The vending machine will release lemon tea.
 C. A can of lemon tea will cost more than $6.
 D. The vending machine will release lemon tea only if a $10 coin is received.

(2005 CECIT 1A Q.33)

9. Which of the following statements about copyright is correct?

A. It is effective only if the author has a statement about copyright on his/her work.
B. It applies to computer software only.
C. The author must register his/her work to obtain copyright.
D. It applies automatically to the owner of the original work.

(2006 CECIT 1A Q.3)

10. What is the minimum number of bits needed to represent a set of 94 characters of 'Hangul' in the Korean language?

A. 7
B. 8
C. 9
D. 10

(2006 CECIT 1A Q.6)

11. Jimmy wants to include some multimedia elements in a presentation file. Instead of copying the multimedia elements into the file, he uses hyperlinks. Which of the following descriptions is correct?

A. The presentation can include more multimedia elements.
B. The presentation can be more interactive.
C. The presentation can play video files immediately.
D. The presentation file is smaller.

(2006 CECIT 1A Q.7)

12. A 3×3 table is created in spreadsheet software and the preview of the printout is shown below:

Which of the following actions is the most appropriate way to improve the presentation of the table?

A. Change the horizontal alignment of the cells in the table.
B. Change the page orientation.
C. Change the border setting.
D. Change the print area.

(2006 CECIT 1A Q.17)

13. Which of the following I/O devices are commonly used by a cashier in a restaurant?

    (1) Magnetic strip card reader
    (2) Optical character reader
    (3) Inkjet printer
    (4) Thermal printer

    A. (1) and (3) only
    B. (1) and (4) only
    C. (2) and (3) only
    D. (2) and (4) only

(2006 CECIT 1A Q.19)

14. Which of the following is **not** an online public service provided by ESD*life*（生活易）?

    A. Booking a football field
    B. Making a dentist's appointment
    C. Booking an appointment to give a marriage notice
    D. Ordering past HKCE examination papers

(2006 CECIT 1A Q.20)

15. Mr. Chan wants to register a domain name using his name, 'Chan Tai Man'. Which of the following domain names is **not** valid?

    A. chantaiman.co.uk
    B. chantaiman.com.org
    C. chantaiman.com.hk
    D. ChanTaiMan.Net

(2006 CECIT 1A Q.24)

16. Lily tells her friends, Ka Kee (KaKee@hkeaa.edu.hk), Po Yan (PoYan@hkeaa.edu.hk) and Mo Yi (MoYi@hkeaa.edu.hk), the date of her birthday party through an email as shown below. Which of the following statements **cannot** be derived from this email?

To:	KaKee@hkeaa.edu.hk
CC:	PoYan@hkeaa.edu.hk
BCC:	MoYi@hkeaa.edu.hk
SUBJECT:	**My birthday party on 25/4**

Hi,
    Call me if you could come! :p
Lily

    A. Ka Kee knows that the birthday party is held on 25/4.
    B. Ka Kee knows that Po Yan receives the email.
    C. Po Yan knows that Mo Yi receives the email.
    D. Mo Yi knows that Ka Kee and Po Yan receive the email.

(2006 CECIT 1A Q.26)

17.

incorrect display

correct display

The above screen shot of a browser, shows that some Chinese characters are correctly displayed while some are not. Which of the following is the possible reason?

A. The server uses two different coding schemes to store the Chinese characters of the web page.
B. The server uses two different protocols to send the web page to the browser.
C. The browser uses two different coding schemes to decode the Chinese characters on the web page.
D. The correct display is an image.

(2006 CECIT 1A Q.28)

18. Which of the following characteristics of high level language reflects the concept of program modules?

A. Subprogram
B. Comment
C. Condition
D. Looping

(2007 CECIT 1A Q.23)

19. Amy owns a domain name, 'amycomp.com'. Which of the following URLs is **not** owned by Amy?

A. http://www.amycomp.com.hk/main.htm
B. http://mail.amycomp.com/register.htm
C. http://www.AmyComp.com/index.html
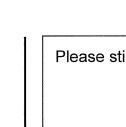D. http://www.amycomp.com/next_level/index.html

(2007 CECIT 1A Q.18)

20. The specification of a CPU, 3.0 GHz, indicates _____.

A. the computational power
B. the data transfer rate
C. the storage capacity
D. the maximum I/O speed

END OF SECTION A

Go on to Question-Answer Book B for questions in Section B

B

HONG KONG EXAMINATIONS AND ASSESSMENT AUTHORITY
HONG KONG DIPLOMA OF SECONDARY EDUCATION EXAMINATION

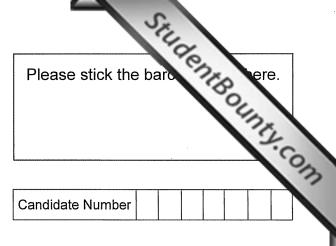| Candidate Number							

INFORMATION AND COMMUNICATION TECHNOLOGY
PAPER 1 (Sample Paper)
SECTION B: Question-Answer Book B

This paper must be answered in English.

INSTRUCTIONS

(1) Write your Candidate Number in the space provided on Page 1.

(2) Stick barcode labels in the spaces provided on Pages 1, 3 and 5.

(3) Refer to the general instructions on the cover of the Question Book for Section A.

(4) The questions in this Question-Answer Book carry 60 marks. Answer **ALL** questions.

(5) Write your answers to Section B in the spaces provided in this Question-Answer Book. Do not write in the margins. Answers written in the margins will not be marked.

(6) Supplementary answer sheets will be provided on request. Write your candidate number, fill in the question number and stick a barcode label on each sheet. Tie them loosely but securely with a string INSIDE this Question-Answer Book.
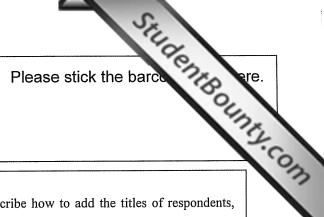
	Marker's Use Only	Examiner's Use Only
	Marker No.	Examiner No.
Question No.	Marks	Marks
1		
2		
3		
4		
5		
Total		

Answer all questions.   Write your answers in this question-answer book.

(Modified from 2007 ASCA1/ALCS1 Q.8)

1.   Mary uses her desktop computer at home to analyse a survey.

   (a) Mary suspects that her computer is infected by spyware.   Give **two** unusual events that may alert her to this possible infection.

   _____

   _____

                                                                              (2 marks)

   (b) After completing the analysis, Mary prepares her findings in PDF file format and posts the file onto her web site for the public to download.   Give **two** reasons to support her use of this file format.

   _____

   _____

                                                                              (2 marks)

   (c) Mary also shows her findings using presentation software.   Suggest **three** precautions which should be taken when including text in a presentation.

   _____

   _____

   _____

                                                                              (3 marks)

   (d) After the presentation, Mary decides to collect more views from respondents and sends them each a questionnaire by postal mail, for which a name label is required.   The name and sex of each respondent are stored in a worksheet and part of the worksheet is shown below.

	A	B	C	D
1	SEX	FIRSTNAME	LASTNAME	
2	F	May	Chan	
3	M	John	Wong	
4	F	Amy	Ho	

   `F` and `M` in column `A` represent female and male respectively.   Each name label should include the title of each respondent before his or her name, for example, `Ms May Chan`, `Mr John Wong` and `Ms Amy Ho`.

   (i) Mary used the following steps in a word processor to create the labels.

      (1) Use 'mail merge' with columns, `SEX`, `FIRSTNAME` and `LASTNAME`, as fields.
      (2) Produce a merged document containing all the name labels.
      (3) Use 'find and replace' in order to add the titles of respondents.

      Instead of "`Ms May Chan`", the label shows "`Mrs Mray Chan`".   Explain why.

   _____

   _____

(ii) By making use of formula(e) in the spreadsheet, describe how to add the titles of respondents, 'Mr' and 'Ms', in column D of the worksheet.

_____

_____

(4 marks)

Mary uses spreadsheet software to store the responses from 40 copies of the questionnaire. Each copy consists of 6 questions. The responses to the questions are coded as values: 1, 2, 3 or 4. The following worksheet is used to record the responses.

	A	B	C	D	E	F	G	H	I
1	Questionnaire \ Question	Q1	Q2	Q3	Q4	Q5	Q6		
2	Copy 1	1	1	2	2	1	4		
3	Copy 2	1	2	4	4	3	3		
4	Copy 3	1	3		1	2	3		
5	Copy 4		4	2	3	2	4		
6	Copy 5	2	4	4	1	2	3		
:	:	:	:	:	:	:	:		
41	Copy 40	2	4	4	2	3	3		
42									
43	Mean response score	1.8	3.0	3.1	2.3	2.8	2.7	Total number of copies	
44									
45	Total number of '1' and '2'	25	10	5	23	17	18		
46	Total number of '3' and '4'	14	30	34	14	23	12		
47									
48	Overall response	BAD	GOOD	GOOD	BAD	GOOD	BAD		

When some responses are missing, the corresponding cells in the worksheet are left blank (e.g. D4). To calculate the total number of copies without any missing responses, firstly a formula is entered into I2 and then copied into I3 to I41. Secondly, another formula, '=SUM(I2:I41)', is entered into I43.

(e) Write the formula in I2.

_____

(2 marks)

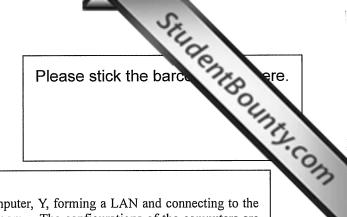The mean response score of a question is defined as:

$$\text{Mean response score} = \frac{\text{Sum of all values of the responses on that question}}{\text{No. of responses on that question}}$$

where the mean response score is correct to 1 decimal place.

(f) A formula is entered into `B43`, and then copied into `C43` to `G43`, to find the mean response score [for] each question. Write the formula in `B43`.

_____

A formula, '`=FREQUENCY(B2:B41,2)`', is used so that the total number of responses '1' and '2' and the total number of responses '3' and '4' for each question can be found in row 45 and row 46 respectively.

(g) How can the `FREQUENCY` function be entered correctly and efficiently?   Describe the steps required.

_____

_____

_____

_____

(3 marks)

The overall response of a question is regarded as 'GOOD' if it fulfills the following two conditions:

① the mean response score > 2.5
② the total number of responses '3' and '4' > the total number of responses '1' and '2'

Otherwise the overall response of the question is regarded as 'BAD'. A formula is entered into `B48`, and then copied into `C48` to `G48` to find the overall responses of the questions.

(h) Write the formula in `B48`.

_____

_____

(2 marks)

(Modified from 2006 CECIT 1B Q.3)

2.   David installs a desktop computer, X, and a notebook computer, Y, forming a LAN and connecting to the Internet through a 10M broadband connection in his bedroom.   The configurations of the computers are as follows:

	X	Y
CPU	P4 3 GHz	M 1.73 GHz
Cache	2 MB	2 MB
RAM	512 MB	256 MB
Network	10/100 LAN card	10/100 LAN card and 54M wireless LAN card

(a)   David wants to connect an external DVD writer to X.

   (i)   The DVD writer is not designed to connect to a parallel port.   Why not?

   _____

   (ii)   Give the port that the DVD writer should be connected to: _____

                                                                                                        (2 marks)

(b)   Y can be connected to the Internet through a network cable or wireless communication.   Compare the performance using these two methods in the following activities in terms of data transmission speed.

   (i)   File sharing between X and Y

   _____

   _____

   (ii)   Browsing the Internet

   _____

   _____

                                                                                                        (4 marks)

(c)   Cache is "high-speed" memory.   In X, the size of the cache is much smaller than that of RAM.   In order to enhance X's performance, should X install 512 MB cache?   Explain briefly.

   _____

   _____

   _____

                                                                                                        (2 marks)

(d)   In order to preserve the connectivity of X and Y in the LAN, should both be installed the same version of the operating system?   Explain briefly.

   _____

   _____

                                                                                                        (2 marks)

(Modified from 2006 ASCA1 Q.5, 2006 ALCS2 Q.9, 2004 ALCS2 Q.8)
3.   David creates a web page with frames and animation.

Introduction	**Vision**
Vision	Assessment for Learning
Mission	[×]
Contact Us	
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	HKEAA · · · · · · · · · All rights reserved

(a) (i)   David can successfully browse the animation in the web page on one computer but cannot browse it on another one.   The web page is only displayed as shown above.   Give a possible reason for this.

_____

_____

(ii) Give one unsatisfactory aspect of the design of the above web page presentation, other than the animation.

_____

_____
(3 marks)

David wants to share a file with other people. The file can be downloaded by clicking a hyperlink on the web page or by Peer-to-Peer (P2P) freeware.

(b) Give one advantage and one disadvantage of using a hyperlink to download the file.

Advantage: _____

_____

Disadvantage: _____

_____
(2 marks)

(c) List **two** social impacts of the inappropriate use of this P2P freeware.

1. _____

_____

2. _____

_____
(2 marks)

David studies in ACC College. In the college, an SMTP server is used to transfer e-mail with other SM~~~ servers over the Internet. The SMTP server stores the e-mail in a POP3 server, which allows client computers to retrieve the e-mail. Outgoing e-mail is sent directly through the SMTP server.

David gets the following information from ACC College.

POP3 E-mail Account Settings on Mail Client Software:

SMTP Server Name / IP Address: smtp.acc.edu.hk / 210.0.168.23
POP3 Server Name / IP Address: pop3.acc.edu.hk / 210.0.168.112
User Name: davidchan
Password: beasmartboy

(d) Based on the information provided, fill in the following dialog box from the mail client software so that Peter can send and retrieve e-mail at home with the mail client software.

Server Information

Incoming mail server: _____

Outgoing mail server: _____

(1 mark)

(e) Normally, users configure the mail client software with the server names instead of the IP addresses.

(i) Give an advantage of using the server name over the IP address.

_____

_____

(ii) Give an advantage of using the IP address over the server name.

_____

_____

(2 marks)

(f) Suppose the SMTP server is stopped but the POP3 server is still running. What functions with respect to sending and receiving e-mail can still be used? What functions cannot be used?
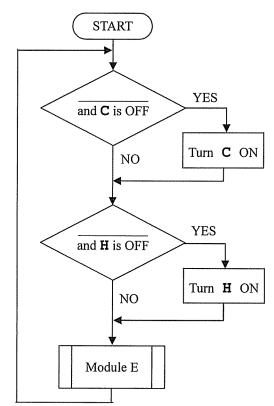
_____

_____

_____

_____

(2 marks)

(Modified from 2006 CECIT 1B Q.4)

4.   Mr. Lam designs a simple greenhouse cooling and heating system. The ideal greenhouse temperature between 20 ℃ and 32 ℃.   Initially, the cooler and heater are off. The system will operate as follows:

Temperature (X)	Cooler (**C**)	Heater (**H**)
X < 20	OFF	ON
X > 32	ON	OFF

The flowchart below describes the operations of the system and Module E is a part for energy conservative.

(a) Fill the appropriate conditions of X in the two decision boxes of the flowchart.

(2 marks)

(b) In order to save more energy, Mr. Lam decides that the cooler will be turned off when $X \leq 28$, and heater will be turned off when $24 \leq X$.   Draft a flowchart for Module E to implement his idea in the space provided. The design of Module E should be precise and without redundancy.

Module E

(5 marks)

(Modified from 2004 ALCS2 Q.2, 2006 ASCA1 Q.4, 2007 ASCA1 Q.7)

5.   Peter is an IT manager in a company. He gives some suggestions for the ergonomics of a new compute. room below:

    (1) Use adjustable chairs
    (2) Install blinds on the windows to shade the monitors nearby
    (3) Create shortcut keys for the software installed in computers

(a) For each of the above suggestions, explain briefly how the working conditions can be ergonomically improved and state the health hazards that can be reduced.

    (1) _____

    _____

    (2) _____

    _____

    (3) _____

    _____

(3 marks)

Peter is responsible for maintaining the e-mail system in the company.

(b) To log in to the e-mail system, users are required to enter a user number and a login password.

LOGIN

User number: [   ]

Password: [   ]

[Submit]

(i) Many users enter wrong user numbers. Suggest **two** methods of improving the design of the system for Peter to help users enter the user numbers correctly.

_____

_____

_____

(ii) The requirement for the system's login password changes from 6 numeric digits to 8 alphanumeric characters.   Give **two** reasons why this change results in better security.

_____

_____

(4 marks)

(c) Peter and his colleague, Mary, send e-mail using public and private key encryption. Peter can ~~~~ e-mail to Mary using the following two methods:

① Peter encrypts an e-mail with Mary's public key and Mary decrypts it with her own private key.

② Peter encrypts an e-mail with his own private key and Mary decrypts it with Peter's public key.

(i) Give an advantage of using method ①.

_____

_____

(ii) In fact, anyone can have Peter's public key and hence can read the e-mail sent out by Peter through method ②.   Why might Peter still want to use method ② ?

_____

_____

(iii) Suggest and describe a method of using public and private key encryption which would be better than methods ① and ② for allowing Mary to read e-mail sent by Peter.

_____

_____

_____

(4 marks)

END OF PAPER