HONG KONG EXAMINATIONS AND ASSESSMENT AUTHORITY
HONG KONG DIPLOMA OF SECONDARY EDUCATION EXAMINATION 2012

Candidate Number

INFORMATION AND COMMUNICATION TECHNOLOGY

PAPER 2C

Multimedia Production and Web Site Development

Question-Answer Book

11.15 am – 12.45 pm (1 hour 30 minutes)
This paper must be answered in English

INSTRUCTIONS

(1) After the announcement of the start of the examination, you should first write your Candidate Number in the space provided on Page 1 and stick barcode labels in the spaces provided on Pages 1, 3 and 5.

(2) **ANSWER ALL QUESTIONS.** Write your answers in the spaces provided in this Question-Answer book. Do not write in the margins. Answers written in the margins will not be marked.

(3) Supplementary answer sheets will be supplied on request. Write your candidate number, mark the question number box and stick a barcode label on each sheet, and fasten them with string **INSIDE** this book.

(4) No extra time will be given to candidates for sticking on the barcode labels or filling in the question number boxes after the 'Time is up' announcement.

Answer all questions.

1. Henry creates a web page using frames, as shown below.

p1.jpg

Examinations
<u>HKDSE</u>
<u>HKALE</u>
<u>HKCEE</u>

(a) Henry inserts image `p1.jpg` using the following codes.

```
<img alt="Select an exam:" src="p1.jpg">
```

(i) How will the text 'Select an exam:' be shown on the web page?

_____

_____

(ii) How can these codes help visually-impaired people to access the web page?

_____

_____

(iii) The resolution of the image is 600×400. Henry wants to keep its aspect ratio. There are three options: (1), (2) and (3). Indicate the option(s) that he can use and explain your answer briefly.

(1) `<img alt="Select an exam:" src="p1.jpg" width=600>`

(2) `<img alt="Select an exam:" src="p1.jpg" width=300 height=200>`

(3) `<img alt="Select an exam:" src="p1.jpg" height=200>`

_____

_____

_____

_____

_____

(5 marks)

(b) Henry wants to add a hyperlink to the image by using `<a>` tag. The value of the attribute `target` can be `_new`, `_parent` or `_top`.

(i) Suppose `_new` is used. What will happen when the image is clicked?

_____

(ii) Describe a situation in which the same display effect is generated when either `_top` or `_parent` is used.

_____

_____

_____

(3 marks)

Henry wants to re-design his web page. He has two proposals: Proposal 1 and Proposal 2.

In Proposal 1, all hyperlinks link to individual web pages without frames.

Examinations		
HKDSE		
HKALE		
HKCEE		

Click
HKDSE
⟹

HKDSE

Category A
Category B
Category C

Click
Category A
⟹

Category A

Chinese Language
English Language
Mathematics
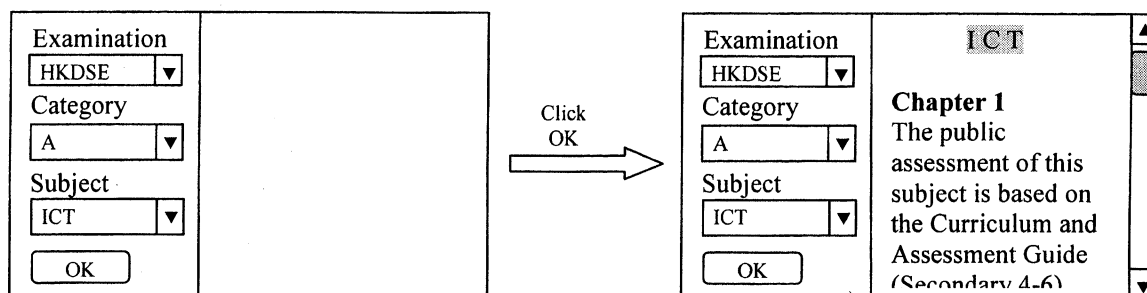Liberal Studies
ICT
Biology
Chemistry

Click
ICT
⟹

ICT

Chapter 1
The public assessment of this subject is based on the Curriculum and Assessment Guide (Secondary 4-6) Information and Communication Technology (ICT) jointly prepared by the Curriculum Development Council

Provided by dse.life

In Proposal 2, when the OK button is clicked, the target web page is shown in the right frame.

Examination		
HKDSE ▼		
Category		
A ▼		
Subject		
ICT ▼		
OK		

Click OK →

Examination	ICT
HKDSE ▼	**Chapter 1**
Category	The public
A ▼	assessment of this
Subject	subject is based on
ICT ▼	the Curriculum and
OK	Assessment Guide
	(Secondary 4-6)

(c) (i) Give one way in which Proposal 1 is better for users than Proposal 2.

_____

_____

(ii) Give one way in which Proposal 2 is better for users than Proposal 1.

_____

_____

(2 marks)

(d) (i) In Proposal 2, Henry finds that the target web page shown in the right frame is so long. Users have to scroll to the top of the web page frequently. Suggest and describe a design feature that can help this problem.

_____

_____

_____

_____

(ii) In Proposal 2, what should be considered for the design in the left frame? Describe briefly.

_____

_____

_____

_____

(4 marks)

2.   John is a web page designer. He designs a web site for a secondary school.

(a) The Principal wants to use the school song as the background music of the school's homepage. The music teacher plays the school song on a piano and records it in a digital format.

(i)   Is it possible to record this piano version of the school song in MIDI format? Explain briefly.

_____

_____

(ii) John decides to create a MIDI file of the piano version of the school song instead of an MP3 file because of its smaller file size. Why will the MIDI file be smaller?

_____

_____

_____

(iii) The Principal wants to record the school choir singing the school song. John uses the WAV format to record and then uses the MP3 format for the web site. Justify the use of these two file formats.

_____

_____

_____

(4 marks)

The Principal wants to record his speech during a morning assembly and post it onto the web site.

(b) The following audio specifications can be used for the recording:

Audio Format	P	Q	R	S
Channel	Stereo	Mono	Stereo	Stereo
Sampling rate	22.05 kHz	22.05 kHz	44.1 kHz	44.1 kHz
Sample size	16-bit	16-bit	16-bit	8-bit

(i)   When comparing P and S, the Principal finds that one of them has more noise. Which one? Explain briefly.

_____

_____

(ii) If P is used, the file size is 5 MB. Estimate the file sizes for Q, R and S.

Q =_____   R =_____   S =_____

(5 marks)

(c) In addition to the recording of the speech, what should John provide on the web site so that students with special educational needs can understand the speech? Explain briefly.

_____

_____

(2 marks)

(d) The Principal wants to create a mobile version of the school web site for mobile phones. Suggest **three** types of modification that should be made to the original design.

_____

_____

_____

_____

_____

(3 marks)

3.   Peter has to submit a multimedia project assignment to his teacher via email.

(a) He draws a picture on a piece of paper. The piece of paper is 8 × 6 inches.

   (i)   He wants to use a scanner to scan the picture with 1200 pixels per inch and 24-bit colour. Without file compression, what is the approximate file size of the scanned image (in MB)? Show your calculation.

   _____

   _____

   _____

   (ii) There are two different methods that can be used when scanning an image: 'lossless' and 'lossy'. Compare these two methods in terms of file size, compression and colour depth.
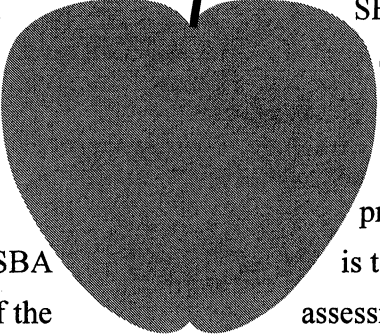
   _____

   _____

   _____

   _____

   _____

   _____

   _____

(5 marks)

Provided by dse.life

(b) To introduce the assignment, Peter designs a web page with the 'text wrap around image' effect, as shown below.

ICT Project Assignment

In the contexts of public assessment, School-based Assessment (SBA) refers to assessments administered in schools and marked by the students' own teachers. SBA marks awarded will count towards students' public assessment results. The primary rationale for SBA is to enhance the validity of the assessment, by including the assessment of outcomes that cannot be

(i) Briefly describe how Peter uses table to have the wrap around effect.

_____

_____

_____

(ii) Other than using table, suggest another method of creating this effect. State one advantage of your alternative method.

_____

_____

_____

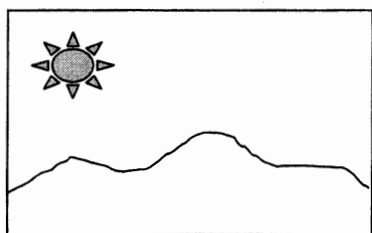_____

(4 marks)

(c) In the assignment, Peter creates a 5-second animation in GIF format with 10 frames per second, as illustrated below.
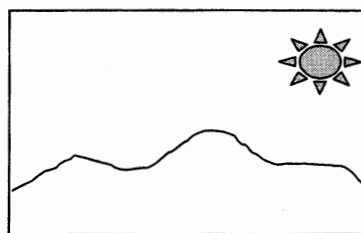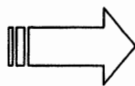
Start   End

He wants to extend the animation to 10 seconds. He has the following three proposals:

(1) Reduce the frame rate to 5 frames per second.
(2) For any two consecutive frames, insert one blank frame with white as the background colour.
(3) Duplicate every frame immediately after itself.

(i) With respect to the display of the animation, is there any difference between (1) and (2)? Explain briefly.

_____

_____

_____

_____

(ii) With respect to the display of the animation, is there any difference between (1) and (3)? Explain briefly.

_____

_____

_____

_____

(iii) Finally, Peter decides to use the SWF format instead of the GIF format. Give **two** reasons to support his decision.

_____

_____

_____

_____

(6 marks)

4.   Mr Li edits a mathematics exercise. Part of the printout of the exercise is shown below. He asks Janice, a web page designer, to develop an online exercise system for his students to use.

Love & Joy School
Exercise 1

NAME: _____   CLASS: _____   CLASS NUMBER: _____

1. $4 \times 5 + 10 \ =$ _____

2. $2 + 5 \times 7 \ =$ _____

3. $3 \times 9 - 11 \ =$ _____

(a)   Janice uses a drop-down select list instead of a text box to input CLASS. State one benefit to Mr Li and one benefit to the students of this method.

Benefit (Mr Li): _____

_____

Benefit (students): _____

_____

(2 marks)

(b)   Mr Li suggests removing the input of NAME by putting student names into a two-level interdependent select list, as shown below:

CLASS: [1A ▼]   CLASS NUMBER: [(01) Chan Siu Man   ▼]
                                                     [(01) Chan Siu Man]
                                                     (02) Chan Tai Man
                                                     (03) Cheng Lai Lai
                                                          :
                                                           :

(i)   Janice writes a client-side script in the HTML file to implement the interdependent select list. Briefly describe how the script helps control the select list.

_____

_____

_____

(ii)   Will this design affect the performance of the system? Justify your answer.

_____

_____

_____

(4 marks)

Provided by dse.life

Mr Li wants to use multiple-choice questions in the exercise. Janice shows him a prototype in a browser, as below.

Mathematics Exercise	− □ X

Love & Joy School
Exercise 1

CLASS: [1A ▼]   CLASS NUMBER: [(02) Chan Tai Man ▼]

[Score]   [% correct]   [Not attempted]

1. 4 × 5 + 10 =
    A. 19
    B. 20
    C. 25
    D. 30
    Answer: [A ▼]

2. 2 + 5 × 7 =
    A. 14
    B. 37
    C. 40
    D. 47
    Answer: [A ▼]

Welcome to Love & Joy School. You are the 5,230-th visitor.

(c) (i) Suggest **two** methods of creating a counter to count the number of visitors.

_____

_____

_____

(ii) Mr Li finds that the default value of each drop-down select list is 'A' and his students may easily be confused. Suggest **two** ways to solve this problem.

_____

_____

_____

_____

(4 marks)

In the exercise, there are three buttons for displaying information, as described in Table 1 below.

Table 1

Button	Information displayed when clicking the button
Score	The total number of questions correctly answered
% correct	$100 \times \dfrac{\text{the total number of questions correctly answered}}{\text{the total number of questions attempted}}$
Not attempted	The total number of questions that have not been attempted

Table 2

Variable	Description
p	This is an integer array to indicate whether the questions are attempted. p[i] = 1 if the i-th question is attempted; otherwise, p[i] = 0.
q	This is an integer array to indicate whether the questions are correctly answered. q[i] = 1 if the answer of the i-th question is correct; otherwise, q[i] = 0.
ans	This is a character array to store the correct answers of the questions. ans[i] stores the correct answer of the i-th question.
n	This is a constant variable to store the total number of questions.

(d) When a question is attempted, the student's answer is stored in the variable, choice, and a script invoked automatically. Describe how the script assigns values to p[i] and q[i] with respect to choice and ans[i].

_____

_____

_____

_____

(3 marks)

(e) Janice has written the scripts described in Table 3 below.

Table 3

Script	Description
SUM(x)	Return the sum of all values in the array x.
DISPLAY(y)	Display the value of variable y.

The script for the first button is given below. By referring to Tables 1, 2 and 3, write down the scripts for the other two buttons.

Button	Script
Score	DISPLAY(SUM(q))
% correct	
Not attempted	

(4 marks)

END OF PAPER