THE HONG KONG POLYTECHNIC UNIVERSITY
HONG KONG COMMUNITY COLLEGE

Subject Title	: Introduction to Internet Technology	**Subject Code**	: CCN1016
Session	: Semester Two, 2014/15	**Time**	: 09:30 – 12:30
Date	: 18 May 2015	**Time Allowed**	: 3 Hours
Subject Examiner(s)	: Dr Hing-keung CHEUNG Mr Yiu-chung CHU		

This question paper has a total of **SIXTEEN** pages (including this covering page).

Instructions to Candidates:

1. There are <u>THREE</u> sections in this paper.
   Section A (50%) – Multiple-choice Questions. Answer <u>ALL</u> questions in this section on the multiple-choice answer sheet provided. Each question carries 1 mark.
   Section B (30%) – Short Questions. Answer any <u>FIVE</u> out of the SIX questions in this section in the answer book provided. Each question carries 6 marks.
   Section C (20%) – Long Questions. Answer any <u>TWO</u> out of the THREE questions in this section in the answer book provided. Each question carries 10 marks.
2. Candidates are <u>NOT</u> allowed to retain the multiple-choice answer sheet, the answer book and the examination question paper.

Authorised Materials:

	YES	NO
CALCULATOR	[ ]	[✓]
SPECIFICALLY PERMITTED ITEMS	[ ]	[✓]

DO NOT TURN OVER THE PAGE UNTIL YOU ARE TOLD TO DO SO

Section B (30%) – Short Questions

Answer any <u>FIVE</u> out of the SIX questions in this section in the answer book provided. Each question carries 6 marks. If more than <u>FIVE</u> questions are answered, only the first <u>FIVE</u> questions answered will be marked.

Question B1

(a) Give **<u>TWO</u>** major advantages of XML over HTML. (1 mark)

(b) With reference to Figure B1(a) below, complete the missing code lines for the corresponding XML file as shown in Figure B1(b) in your answer book. (2 marks)

Subject Title	Offering Date
Computer Science Basics	31-Dec
English Language	1-Jan

```
<subjects> +--<subject> +--<title>
                        +--<offer_date> +--<day>
                                         +--<month>
```

Figure B1(a)

```
<?xml version="1.0" encoding="utf-8" ?>
<?xml-stylesheet type="text/css" href="CCN1016_Exam.css" ?>

<subjects>

        <!-- Missing XML code lines should start from here -->


</subjects>
```

Figure B1(b)

(c) Create and write an external CSS style sheet file to style the above XML file in Figure B1(b) like what appears on the browser screen as shown in Figure B1(c) below. (3 marks)
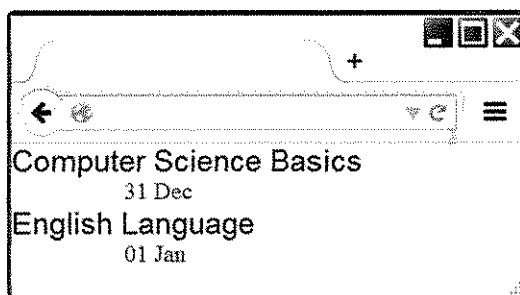

Figure B1(c)

Notes:
- Make "subject" element and "offer_date" element as "block" elements.
- For " title" element, set font family to "Arial" and increase font size by 25%.
- For "offer_date" element, set font family to "Times New Roman", text color to "red", with text indented to the right by "2cm".

Question B2

(a) Define the term Denial of Service (DoS) attack with respect to network security.   (2 marks)

(b) What is meant by flooding in the context of network security? Name **TWO** types of flooding attack.   (3 marks)

(c) Suggest **TWO** protection strategies that can address network security issues.   (1 mark)

Question B3

(a) Explain the meaning of a computer network.   (2 marks)

(b) Use an appropriate diagram to sketch the layout of each of the following database models. Label the diagrams clearly.

    (i)   Client/server database model (2-tier model)   (2 marks)

    (ii)   Internet client/server database mode (3-tier model)   (2 marks)

Question B4

(a) Briefly describe the following categories of Web portals.

    (i)   Consumer Portals   (1 mark)

    (ii)   Personal Portals   (1 mark)

    (iii)   Corporate Portals   (1 mark)

(b) Compare text/multimedia messaging with chat.   (2 marks)

(c) What are social tagging sites?   (1 mark)

Question B5

(a) Briefly describe **ONE** unique feature of tabbed browsing.   (1 mark)

(b) Suggest **TWO** different ways of saving a Web page to a computer.   (1 mark)

(c) In the context of risks and safeguards when using the Web, briefly describe the following types of scams respectively.

    (i)   Phishing   (2 marks)

    (ii)   Pharming   (2 marks)

<u>Question B6</u>

(a) By using an appropriate diagram, illustrate the structure of the OSI network model. Label your diagram clearly. (2 marks)

(b) Show the **FOUR** major groupings regarding the OSI model applied to the Internet. Indicate clearly which major groups are included by the TCP/IP suite. (3 marks)

(c) What is the function of API? Which major group of TCP/IP suite does it belong to? (1 mark)

- End of Section B -

Section C (20%) – Long Questions

Answer any **TWO** out of the THREE questions in this section in the answer book provided. Each question carries 10 marks. If more than **TWO** questions are answered, only the first **TWO** questions answered will be marked.

Question C1

Figures C1(a) to C1(f) below show the sample screenshots of a HTML FORM for students to do simple online calculation via a Web browser using their client computers. The major input elements of the HTML FORM are given in the following.

Major input elements of the HTML FORM in Figures C1(a, c, e):
- **name** for the 1st text box: **studentname**
- **name** for the 2nd text box: **idnumber**
- **name** for the 3rd text box: **number1**
- **name** for the 4th text box: **number2**
- **name** for radio buttons: **operation**
- **value** for top radio button: **add**
- **value** for bottom radio button: **merge**

Figure C1(a)

Figure C1(b)

Figure C1(c)

Figure C1(d)

Question C1 (Continued)

Figure C1(e)

Figure C1(f)

Upon pressing the "Calculate" button, the information collected on the HTML FORM as shown in Figures C1(a, c, e) will be sent to a dedicated PHP file at the server side to process the data. After processing, the server will display a corresponding result screen including the current date information on the student Web browser as shown in Figures C1(b, d, f) above for acknowledgement purpose.

(a) On the answer book provided, create and write a complete HTML file for implementation of the HTML FORM as shown in Figures C1(a, c, e) above. The HTML file will send the inputted data to a PHP file named "**CCN1016_Cal.php**" on "localhost" server.   (5 marks)

(b) On the answer book provided, create and write a complete PHP file for implementation of the corresponding result screen which, upon execution by the server, can process the data received from the HTML FORM file as created in part (a) and display the necessary result messages on the browser screen at the client side as shown in Figures C1(b, d, f) above. Name the corresponding PHP file as "**CCN1016_Cal.php**".   (5 marks)

Question C2

Amongst programming languages, scripting languages are commonly used to create dynamic Web pages to enrich the users' experience and interactivity when surfing the World Wide Web. With PHP scripting language, one can easily create and retrieve values of a cookie which is a small file that the server embeds on the user's computer.

(a) Describe **TWO** unique features of scripting languages.   (2 marks)

(b) Give **TWO** more examples of scripting languages in addition to the JavaScript and PHP script.   (1 mark)

(c) What are the **TWO** main types of scripting languages? Discuss the key difference between them.   (2 marks)

(d) Name **ONE** main advantage of using cookie.   (1 mark)

Question C2 (Continued)

(e) By using the **setcookie()** function, write a short **PHP** code segment to create a cookie named "**user**", and assign the value "**Michael Porter**" to it with expiry set to one hour later. (1 mark)

(f) With reference to the cookie created in part (e) above, use the **isset( )** function and **$_COOKIE[ ]** variable to write a small **PHP** file such that it will check if the mentioned cookie has been set or not to the user's computer. If yes, the **PHP** file should display a customized welcome message like "Welcome, Michael Porter!". If not yet set, it should show a general welcome message as "Welcome, guest!" instead.   (3 marks)

Question C3

Mobile Gadgets Inc. is a fast-growing company selling a wide range of mobile phone accessories to local consumers in Hong Kong. They started with one physical shop in Mongkok area two years ago and now have grown to run a total of five shops in different districts in Hong Kong. The Marketing and Sales's director of Mobile Gadgets Inc., Jerry Wong, is eager to expand their current "brick-and-mortar" retail selling operation into the online business (e-business) arena and interested in setting up an online storefront to generate additional sales.

Determined to maximize the potential of their online business, Jerry wants to learn more about different cost effective and creative ways to market and operate their online business. As an e-business technical consultant, you have been approached by Jerry to help answer his queries as in the following.

(a) Briefly describe **TWO** limiting factors for brick-and-mortar business in general.   (2 marks)

(b) What is an e-business model?   (1 mark)

(c) Based on the above scenario, identify the **MOST** appropriate type of e-business models applicable to the online store of Mobile Gadgets Inc.   (1 mark)

(d) What is exactly meant by "Network Effect" from the perspective of e-business?   (1 mark)

(e) Suggest **TWO** effective ways that Mobile Gadgets Inc. can employ to draw more potential buyers to their online storefront.   (2 marks)

(f) Discuss **ONE** primary function of storefront software for creating an online store.   (1 mark)

(g) Compare the difference between installed storefront software and hosted storefront software.
                                                                      (2 marks)

- End of Section C -

- END OF PAPER -