

THE HONG KONG POLYTECHNIC UNIVERSITY  
HONG KONG COMMUNITY COLLEGE

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<b>Subject Title</b> : Introduction to Internet Technology <b>Session</b> : Semester Two, 2013/14 <b>Date</b> : 20 May 2014 <b>Subject</b> : Dr Hing-keung CHEUNG <b>Examiner(s)</b> : Mr Kelvin KWAN	<b>Subject Code</b> : CCN1016 <b>Time</b> : 14:00 – 17:00 <b>Time Allowed</b> : 3 Hours
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This question paper has a total of **NINETEEN** pages (including this covering page).

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**Instructions to Candidates:**

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

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

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



## Section B (30%) – Short Questions

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

### Question B1

- (a) What is the OSI model? (2 marks)
- (b) With reference to the OSI model, briefly explain the function of the followings. Give **TWO** examples of protocols for each one of them.
- (i) Transport layer (2 marks)
- (ii) Network layer (2 marks)

### Question B2

- (a) What is the main difference between Public IP address and Private IP address? (2 marks)
- (b) Compare the differences between Bridge and Switch used in a network. (3 marks)
- (c) With reference to the OSI model, which layer does a Bridge or Switch operate at? (1 mark)

### Question B3

Figure B3a below shows a HTML form using table format to collect student feedback information.

#### Input elements:

- **name** for Name textbox: **studentname**
- **size** for Name textbox is **30** characters
- **name** for radio buttons: **gender**
- **value** for radio button: **male**
- **value** for radio button: **female**

#### Textarea element:

- **name** for Feedback textarea: **feedback**
- **size** for Feedback textarea: **5** rows and **30** columns

#### Table:

- **5** rows and **2** columns
- **First** and **last** rows span across 2 columns
- Input and textarea elements are put **inside** the table

The screenshot shows a web browser window with the address bar displaying 'G:\B3.html'. The page title is 'CCPN1016 Examination'. The main content is an 'HTML Form' titled 'Student feedback form'. The form is structured as follows:

Student feedback form	
Name:	<input type="text"/>
Gender:	<input type="radio"/> Male <input type="radio"/> Female
Feedback:	<div></div>
<input type="button" value="Send"/> <input type="button" value="Clear"/>	

Figure B3a

Question B3 (Continued...)

With reference to the requirements for Figure B3a above, complete the following HTML code in Figure B3b by filling the missing code lines (a) to (f) into the answer book. (6 marks)

```

<html>
  <head><title>CCN1016 Examination</title></head>
  <body>
    <h1>HTML Form</h1>
    <form action="http://ccn1016.com/data.php" method="get">
      <table border="1" cellspacing="5">
        <tr><th colspan="2"> Student feedback form </th></tr>
        <tr>
          <td align="right"> Name: </td>
          <td>
            <input _____ (a) _____ />
          </td>
        </tr>
        <tr>
          <td align="right"> Gender: </td>
          <td>
            <input _____ (b) _____ /> Male
            <input _____ (c) _____ /> Female
          </td>
        </tr>
        <tr>
          <td align="right"> Feedback: </td>
          <td>
            <textarea _____ (d) _____ > </textarea>
          </td>
        </tr>
        <tr>
          <td colspan="2" align="center">
            <input _____ (e) _____ />
            <input _____ (f) _____ />
          </td>
        </tr>
      </table>
    </form>
  </body>
</html>

```

Figure B3b

Question B4

- (a) Define Flooding with respect to network security. (2 marks)
- (b) Regarding network protection, briefly describe **TWO** properties for each of the following protection strategies.
- (i) Encryption (2 marks)
  - (ii) SSL (2 marks)

Question B5

- (a) Briefly explain the term network (physical) topology. (1 mark)
- (b) State the name of the **THREE** basic LAN physical topologies and draw a simple connection diagram for each one of them. Label all the diagrams clearly. (3 marks)
- (c) Briefly describe the following network access methods.
- (i) Ethernet (1 mark)
  - (ii) Token ring (1 mark)

Question B6

- (a) In the context of search process, briefly describe the following types of search queries.
- (i) A targeted search (1 mark)
  - (ii) An open-ended search (1 mark)
  - (iii) A natural language search (1 mark)
- (b) What are metasearch engines? (1 mark)
- (c) Briefly describe **TWO** major properties of directories in the context of search tools. (2 marks)

- 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

- Give **TWO** reasons why programming is used by Web Server and Web Client. (2 marks)
- Briefly explain the differences between client-side script and server-side script. (2 marks)
- Figure C1a below shows a HTML form for students to do online subject registration with their client computers. The major input elements of the form are given in the following.

Input elements of the FORM in Figure C1a:

- name for the 1<sup>st</sup> text box: **studentname**
- name for the 2<sup>nd</sup> text box: **idnumber**
- name for radio buttons: **subject**
- value for radio button: **CCN1007**
- value for radio button: **CCN1016**

Figure C1a

Figure C1b

Upon pressing the “Send” button, the information collected on the form will be sent to a dedicated PHP file at the server side to process the data. After processing, the server will display a message screen on the student Web browser as shown in Figure C1b above for confirmation purpose.

You are required to create and write a complete PHP file which, upon execution by the server, can process the data sent by the HTML form file and display the necessary confirmation messages on the browser screen at the client side as shown in Figure C1b above. (5 marks)

- Name **TWO** other scripting languages apart from PHP. (1 mark)

Question C2

E-Method Ltd. is a fast-growing mobile Internet technology company in Hong Kong. With their professional expertise and extensive business experience, they are able to conduct their business activities over the Internet in a wide range of areas such as:-

- Offer technology solutions and transfer services to local companies
- Offer consultation services and technology training to local companies
- Provide implementation/upgrade of network infrastructure to local companies
- Provide information security control to local companies
- Provide consultation services to government
- Host an online store to sell their own brand high-tech consumer products directly to both overseas and local customers
- Run a physical storefront in Mongkok area to sell/repair their high-tech consumer products as well as for online order delivery to local customers

- (a) Based on the above scenario, identify the types of E-Business Models applicable to E-Method Ltd. Justify your answer by quoting ONE business activity from above for each E-Business Model identified. (3 marks)
- (b) With respect to the retail selling of their own brand products directly to customers, identify the approach that E-Method is currently adopting. (1 mark)
- (c) BuyHappy Ltd. is a well-established retailer company specialised in selling portable electronic products to local customers. They have planned to convert their traditional brick-and-mortar retail operation into E-business operation so as to expand their business to overseas customers. For this reason, they have approached E-Method Ltd. for premier technology solutions and consultancy services. Being the chief technology consultant in E-Method Ltd., you are being asked to help BuyHappy Ltd. to address the following queries they currently have.
- (i) State TWO major advantages that E-Business can bring to BuyHappy Ltd. (1 mark)
- (ii) What type of Internet connection methods would you suggest to E-Method Ltd. if they want to have a very reliable and high-speed business Internet service for running their E-Business activities? Justify your answer with supporting reasons. (1 mark)
- (iii) What is the major difference between personalization and customization processes applicable to their company Web site? (2 marks)
- (iv) What are the TWO important things that E-Method Ltd. must have established if their online store is going to accept credit payment by their customers? (2 marks)

Question C3

(a) You are given the following HTML code as shown in Figure C3a below.

```
<html>
  <body>
    <h2>JavaScript Question</h2>
    <script type="text/javascript">
      var d=new Date();
      var time=d.getHours();

      // Your scripts in part (a) should be inserted here

    </script>
  </body>
</html>
```

Figure C3a

With reference to above HTML code, write the correct JavaScript code lines to display on the Web browser screen (as shown in Figure C3b below) the current time information and a short message based on the variable *time*, so that:

- it will display a message “ Let’s have breakfast! ” if the current time is 07:00 or after, but before 11:00,
- it will show a message “ Let’s go for lunch! ” if the current time is between 11:00 and 15:00 inclusively,
- it will output a message “ Let’s get a snack! ” if the current time is after 15:00, but before 17:00, and
- it will show a message “ Not in office hours! ” otherwise.

After completion of your JavaScripts, the sample screen output of the Web page should look like as in Figure C3b below. (5 marks)

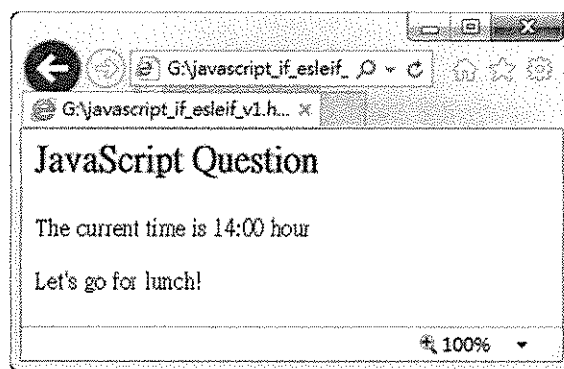


Figure C3b

Question C3 (Continued...)

(b) Study the content of Figure C3c and Figure C3d below carefully to answer this question.

```
<html>
  <head>
    <title>CCN1016 Examination</title>
  </head>
  <body>
    <h2>Long Question on CSS</h2>
    <p>My lovely mobile devices:</p>
    <ol>
      <li>Smartphone</li>
      <li>Tablet</li>
    </ol>
  </body>
</html>
```

Figure C3c

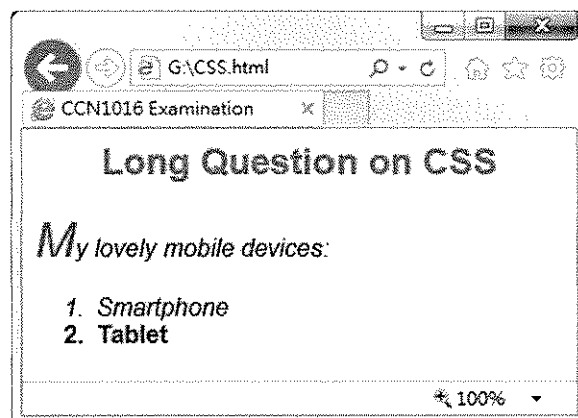


Figure C3d

With respect to the following format requirements, you are required to modify the HTML code as shown in Figure C3c above using **Internal CSS (Cascading Style Sheets) ONLY** so that the resulting screen output of the modified page should look as in Figure C3d above.

- Create a CSS style with the “body” element as the selector to display the whole page with font type “Arial”.
- Create a CSS style with the “h2” element as the selector to display the relevant text in “DeepPink” colour with “center” alignment.
- Create a CSS class selector with the name “first\_letter” which uses the pseudo-element “first-letter” to make the first letter of a “p” tag element display in “Green” colour of size “xx-large”.
- Create a CSS id selector with the name “bold” which makes the relevant text display in bold face.
- Create a CSS id selector with the name “italic” which italicizes the relevant text.



Question C3 (Continued...)

Text content	Font	Font color	Font size	Style
Header – “Long Question on CSS”	Arial	DeepPink	Browser default	Center alignment
Title – “My lovely mobile devices:”	Arial	Browser default <u>except</u> the first letter is Green in colour	Browser default <u>except</u> the first letter is of size “xx-large”	Use the selectors “first-letter” and “italic”
Item – “Smartphone”	Arial	Browser default	Browser default	Use the selector “italic”
Item – “Tablet”	Arial	Browser default	Browser default	Use the selector “bold”

(5 marks)

- End of Section C -

**- END OF PAPER -**