UNIVERSITY OF MAURITIUS

FACULTY OF INFORMATION COMMUNICATION AND DIGITAL TECHNOLOGIES

SECOND SEMESTER EXAMINATIONS

MAY/JUNE 2017

PROGRAMME	BSc (Hons) Applied Computing		
MODULE NAME	Web Design and Development		
DATE	Saturday 6 May 2017	MODULE CODE	CSE1032Y(1)
TIME	9.30- 12.30 hrs	DURATION	3 hours
NO. OF QUESTIONS SET	5	NO. OF QUESTIONS TO BE ATTEMPTED	4

INSTRUCTIONS TO CANDIDATES

The paper consists of 5 (FIVE) questions. Answer 4 (FOUR) questions.

All questions carry equal marks.

Answer any 4 (FOUR) questions.

<u>Question 1</u>
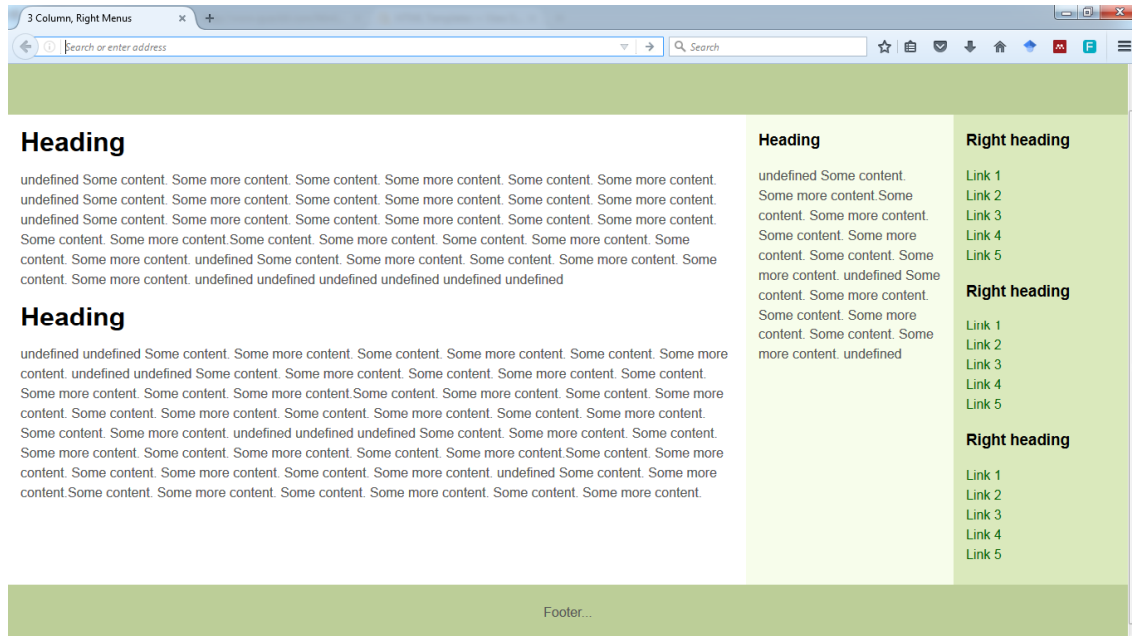
Refer to the page, **template.html**, shown in Figure 1.

Figure 1 - template.html

a) Write the HTML5 code for the page **template.html** given that <nav>, <div>, <article>, <header> and <footer> been used for the design of the page. The links are actually an unordered list and are dummy links pointing to the **template.html** page itself. You do not need to implement any formatting yet.

[10 marks]

b) The page **template.html** is linked to an external css file, **styles.css**. Write the line of code to link the external stylesheet to template.html. Indicate where in your code this line is placed. **[2 marks]**

c) Write the code for the page **styles.css** given that **template.html** is formatted as follows:
   - The background colour of the header and footer is #BCCE98, the main content section is white, the left menu is #F7FDEB and the right menu is #DAE9BC.
   - The menu on the right is an unordered list with the bullets not showing
   - The links are not underlined and are darkgreen in colour (link colour)

[8 marks]

Question 1 (continued)

d)   State whether the following statements related to CSS3 are true/false:
- o   The –webkit- prefix is needed to get CSS3 properties to work on older Mozilla Firefox browsers
- o   CSS3 is fully supported by all browsers
- o   text-shadow: 5px 5px 5px grey is the correct syntax to add text shadow using CSS3
- o   The z-index property specifies the stack order of an element
- o   If you put a value of 0 for a Border-Radius, the corner will be square

[5 marks]

Questions 2 and 3 refer to Figure 2, **RegisterMembership.html**, where prospective library users can register. When the button **'Become a member'** is clicked, all information is sent to the **saveMembership.php** where they are saved in the table **members** in the **library** database.

Figure 2 - RegisterMembership.html

Question 2

a) Write the HTML code for the page **RegisterMembership.html** given that:

- The names of the fields are as follows: cmbTitle, txtNIC, txtFName, txtLName, dteDOB, telMPhone, emlEmail, txtPostalAddress. You may name the fields in the 'Book Preference Information' group as you deem appropriate. You should choose the most appropriate type for each field.
- dteDOB, telMPhone, emlEmail and dteYear elements are **not** of type text.
- The options in the combobox, cmbTitle, are Dr, Mr, Mrs and Miss having same values, respectively.
- The option 'English' is selected by default in 'Book Preference Information'
- All the fields are compulsory and hence cannot be left blank – validated using HTML5.
- The form is submitted to **saveMembership.php** by method **POST**.
- All formatting has been done using CSS/CSS3. There is no need to implement any formatting and JavaScript yet.

[17 marks]

b) When the user clicks on the **'Become a member'** button on the **RegisterMembership.html** page, before the information is sent to **saveMembership.php**, a JavaScript function, checkNIC() is called. The function checks if
- the length of the NIC is 14
- starts with an alphabet,
- followed by 12 numbers
- and ends with either an alphabet or a number.

You may find the following existing JavaScript functions isNanN(), charAt() and useful here.

[8 marks]

Question 3

a) Write the code for the file **dbconnect.php** which will connect to the mysql **library** database given the following details:
- Server name: localhost
- Username: root
- Password: library   **[2 marks]**

b) Write the code for the page **saveMembership.php** given that:
- All the fields on the **RegisterMembership.html** are captured
- An existing file **dbconnect.php** can be used to connect to the **library** database.
- The schema of the table **members** is as follows: nic(varchar(15), PK) title(varchar(10)),   firstName(varchar(25)),   lastName(varchar(25)), DOB(varchar(25)),   mobile(int),   email(varchar(50)),   address (varchar(100)), english(TINYINT(1)), french (TINYINT(1)), spanish (TINYINT(1)) and italian (TINYINT(1)).
- When a checkbox is not selected, it is not submitted. To cater for this, checkboxes which were checked and have been submitted will be assigned a value of 1 and those which were not checked will be assigned a value of 0 before inserting into the table **members**.
- Before saving a check is performed on the NIC.
  - If the NIC (which maps on the field nic in the table) already exists, the user is redirected to the page **RegisterMembership.html**.
  - If the nic does not exist, then all data submitted are inserted in the table **library** and the message 'You have successfully registered at the library' is displayed on the page.

[13 marks]

Question 3 (continued)

c) In the above scenario, it is only after the user has submitted the information that the NIC is checked. If it already exists in the table **library** then the user needs to fill in all the data again. The user interaction can be improved by using AJAX to validate the NIC even before clicking on the submit button. A new button has now been added to the above form as shown in Figure 3 below.

```
┌─Personal Information─────────────────────────────────────────────────┐
│  Title:          Dr ▾              NIC:     [              ] [Check NIC]│
│  First Name:   [              ]    Last Name: [              ]          │
│  Date of Birth: [              ]                                        │
└───────────────────────────────────────────────────────────────────────┘
```

Figure 3 - updated RegisterMembership.html

i) Write the missing code for the AJAX function, findNIC(), given in Code Listing 1.

ii) Write the code to call the function findNIC() indicating where this code is to be placed.

```
<script>
function findNIC(){
//MC1 - missing code to capture NIC value
   var ajaxRequest;
   try {
              ajaxRequest=new XMLHttpRequest();
       } catch (e) {
              alert("Your browser does not support AJAX!");
       }
//MC 2 - Missing Code to be completed– method GET should be used
//page on server that does the processing is checknic.php
//and result should be displayed in a div, divStatus.
}
</script>
```

Code Listing 1 – Incomplete ajax code

[8 + 2 marks]

Question 4

a) Write **only** the jQuery code to implement the effect shown in Figure 4. The effect uses 2 divs, namely div1 (always visible) and div2.
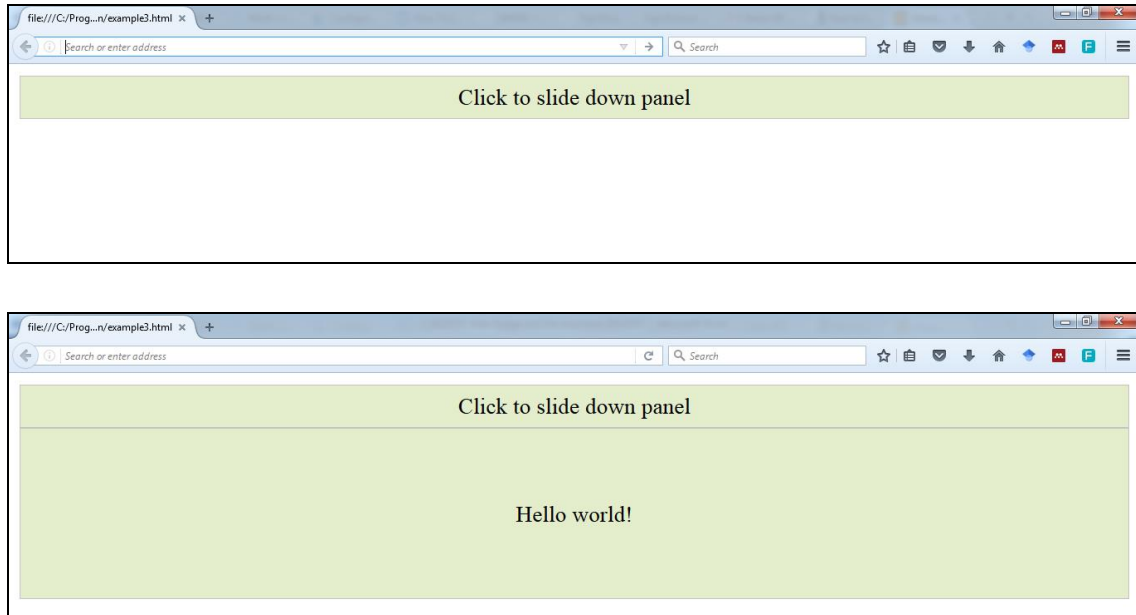

Figure 4 – effect.html – before and after clicking on the first div

[5 marks]

b) The page **searchGene.php** is shown in Figure 5 and Figure 6. The combobox, **cmbGenes**, has been populated with the list of genes (**geneSymbol field**) found in the table **cancergenes** in the database **bioinformatics**. When the user clicks on the **View Gene Information** button, the details of the selected gene are displayed in a div, **div_gene**, using AJAX as shown in Figure 6.
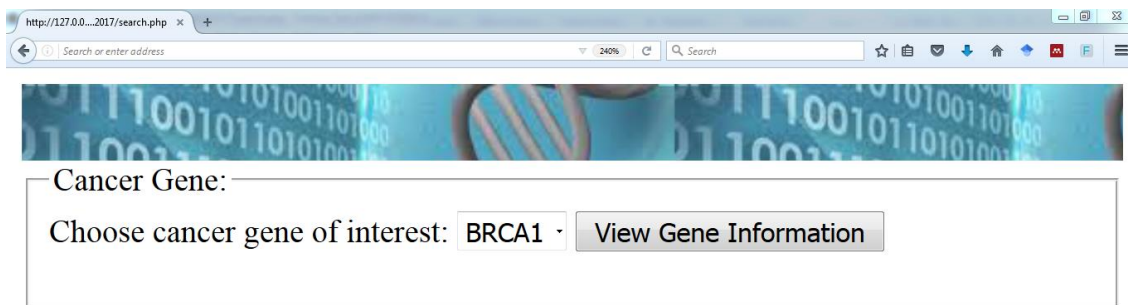
Figure 5 – searchGene.php

Question 4 (continued)
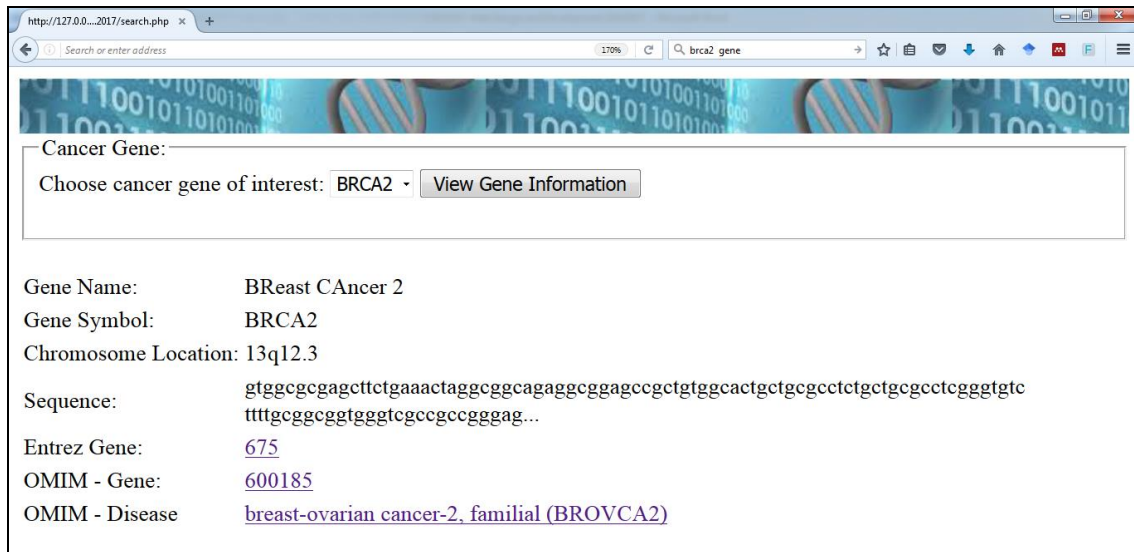
Figure 6 – searchGene.html after clicking on 'View Gene Information'

i)   Write the php code to populate the combobox, **cmbGenes**. You may assume that all database connection code is in an external file **connect.php**. If there are no information available, the message 'No information available for the time being' should be displayed instead of the combobox and button in Figure 5.

[9 marks]

ii) Write the missing AJAX code to display the gene details in the div, **div_gene** given the incomplete code shown in Code Listing 2.

[8 marks]

```
function viewGeneInfo(){
envelop=new XMLHttpRequest();
//MC1 – missing code to capture data from form
//MC2 - missing code to open a connection to getGene.php, to send data  captured
on form by method GET, capture result in an anonymous callback function ,
format and display results in the div_gene as shown in Figure 6
}
```

Code Listing 2

iii) The method open() used in the ajax code in b) accepts 3 parameters. Explain what the 3 parameters mean.

[3 marks]

Question 5

a) Pages which need to be accessible to authenticated users only make use of sessions. After the user and password have been checked against values already saved, the session for the user is created.

   i. Write the php code to create a session called username containing the value $_POST['username'].
   ii. Write the php code that needs to be added to pages which are only accessible to authenticated users. The code should check for valid session or otherwise redirect the user to the **login.php** page.
   iii. Write the php code to destroy that session.

   [2 + 4 + 1 marks]

b) The questions that follow refer to **simplecalculator.html** shown in Figure 7. When the user clicks on any one of the buttons on the calculator, its value is appended to the value already in the textbox, display. When the user clicks on the '=' button, then the textbox is cleared and only the result displays in the textbox.

Figure 7 – simplecalculator.html

i) Write the HTML code for the interface of the calculator. You need not implement any formatting or JavaScript code.

   [7 marks]

ii) Write the JavaScript code such that when the user clicks on any of the buttons on the calculator, its value is appended to the value already in the textbox, display. You should implement this inside the function **updateDisplay().**

   [4 marks]

iii) Write the JavaScript code for evaluating the result when the user clicks on the '=' button. You may find the JavaScript function **eval()** useful here. Eval() evaluates the expression passed as argument.

   [3 marks]

Question 5 (continued)

c) Write the JQuery code for the following effects:

i) When the user clicks on the text in any paragraph, the paragraph disappears.
ii) When the user clicks on a button, btnAdd, some text "New Text." is appended to all paragraphs on the page.

[2 + 2 marks]

END OF QUESTION PAPER

/mm