DUBLIN INSTITUTE OF TECHNOLOGY

DT228 BSc. (Honours) Degree in Computer Science

Year 2

WINTER EXAMINATIONS 2016/2017

WEB DEVELOPMENT 2 [CMPU2022]

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FRIDAY 6TH JANUARY   4.00 P.M. – 6.00 P.M.

Two Hours

Answer Question 1 and any <u>two</u> of the three remaining questions.

Question (1) is worth 40 marks.
Questions (2), (3), and (4) are worth 30 marks each.

Question 1

(a) Define and describe the Web Multi-Tier Application Architecture

(10 marks)

(b) A development team is selecting an appropriate web server to support their suite of web applications. List *six* selection criteria that they should consider in their selection. In your answer, name *three* market leading web servers that they may use in their selection.

(10 marks)

(c) What will be the output of the following php code?

```php
<?php
$num  = 1;
$num1 = 2;
print $num . "+". $num1;
?>
```

    i.   3

    ii. 1+2

    iii. 1.+.2

    iv. error

(4 marks)

(d) There is a user table in MySQL database, in which there are four columns (ID, UserName, Pass, Name), with approximately twenty rows in this table. Write code for PHP Page login program, that does the following:
- Login page contains two input fields: *UserName, Password.*
- Login page contains a submit button so that when clicked, it checks if the values of *UserName* and *Password* are matching records of the table, and then displays Welcome (value of *Name*), or otherwise display "That user does not exist in our database. Click Here to Register".
- Includes appropriate error processing.

(16 marks)

Question 2

(a) List the **seven** stages of the "Web Life Cycle Model" and provide a brief discussion on each of them.

(14 marks)

(b) What is the output of the following code?

```php
<?php
$foo = 'Bob';
$bar = &$foo;
$bar = "My name is $bar";
echo $bar;
echo $foo;
?>
```

    i. Error

    ii. My name is BobBob

    iii. My name is BobMy name is Bob

    iv. My name is Bob Bob

(4 marks)

(c) When processing the form, what is the difference between a hidden form element and a nonhidden one, such as a text box?

    i. The hidden form element does not have a name.

    ii. There is no difference.

    iii. The hidden form element does not have a value.

    iv. The hidden form element is excluded from the request.

(4 marks)

(d) Write a well-formed XML document that represents the data shown in Figure 1

Hospital bill for Andrew Murphy

Date of Service	Service	ID	Price
20/05/2016	Kidney Ultrasound	992837	204.99
21/05/2016	Chest X Ray	999281	59.99
Total Charge			264.98

Figure 1

Question 3

(a) A company has decided to develop their web applications using a *server-side scripting* technology. They have limited their choice to one of PHP or ASP (Active Server Pages). Explain *six* differences between PHP and ASP that they should consider in their decision.

(12 marks)

(b) Why must you call session_start() prior to any output?

    i.   Because it is easy to forget if not placed at the top of your scripts.

    ii. Because you can no longer access the session data store after there has been output.

    iii. Because session_start() sets some HTTP headers.

    iv. Because calling session_start() causes the HTTP headers to be sent.

(4 marks)

(c) A *Stock* table contains four columns: *ProductID, Product, Description* and *stock*. Write code for a PHP Page that selects all the rows from the Stock table with Stock less than 10 and displays the rows as a table on a HTML page.

(14 marks)

Question 4

(a) A web designer is developing a web application and is attempting to determine whether to use *client* or *server* based validation or *both* in the following web pages:

- User registration page that will capture user details for entry on a database
- Search screen, allowing users to enter search parameters that will query a database

Recommend a type of validation that should be used by the designer in *each* of the two pages, providing reasons for your recommendation.

(10 marks)

(b) What will be the output of the following code?

```php
<?php
function calc($price, $tax="")
{
    $total = $price + ($price * $tax);
    echo "$total";
}
calc(42);
?>
```

i.   error

ii. 0

iii. 42

iv. 84

(4 marks)

(c) Create a form like Figure 2, and write PHP code to insert the "First Name, Last Name and Special delivery instructions" collected from the form into an order table.

(16 marks)

A bike order form

What type of bike do you want to purchase?
⦿ Street bike ○ Mountain bike ○ dirt bike

What accessories do you need? ☐ Gloves ☑ Helmet ☐ Camel water bag

Where do you go biking?
Parks
Bike routes

Shipping information

First Name	Last Name	Address	City	State	Zip code

Special delivery instructions

Payment information
Credit card number   Expires 12/10

[Send Order] [Start Over]

Figure 2