

13.01.20

14.00 - 16.00pm

CMPU 2022 Web Development 2

Basement 3, Kevin Street

Programme Code: DT228  
Module Code: CMPU 2022  
CRN: 22392

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## TECHNOLOGICAL UNIVERSITY DUBLIN

### KEVIN STREET CAMPUS

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### BSc. (Honours) Degree in Computer Science

**Year 2**

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SEMESTER 1 EXAMINATIONS 2019/20

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#### **Web Development 2**

Ms. Cindy Liu  
Dr. Deirdre Lillis  
Mr. Patrick Clarke

Two Hours

*Answer Question 1 and any two of the three remaining questions*

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

## Question 1

(a) List seven stages of “Web Life Cycle Model” and provide a brief discussion on each of them.

(14 marks)

(b) Define and describe the Uniform Resource Locator (URL) vs Hostname.

(6 marks)

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

```
< ?php
    $fruits = array ("mango", "apple", "pear", "peach");
    $fruits = array_flip($fruits);
    echo ($fruits[0]);
?>
```

- i. mango
- ii. error
- iii. peach
- iv. 0

(4 marks)

- (d) AerAirways uses the following two database tables to record the flights it offers and the airports it uses:

Flight		
flightNum	goingFrom	goingTo
ea101	DUB	STN
ea102	DUB	EDI
ea103	DUB	GLA
ea104	DUB	CDG
ea105	STN	CDG
ea106	STN	BER
...		

Airport	
airport	country
DUB	Ireland
STN	England
EDI	Scotland
CDG	France
BER	Germany
...	

Suppose destinations.html contains this form:

```
<form action="destinations.php" method="get">
<input type="text" name="going_from" />
<input type="submit" />
</form>
```

The user enters the code of the airport from which s/he likes to travel. Write destinations.php which receives the user's input, queries the database, and outputs a well-formed HTML unordered list of countries to which there is at least one direct flight from the user's chosen airport, including nested lists of flight numbers to that country. For example, using the database shown above, if the user enters "DUB", the user's browser will display something like the following:

- England
  - ea101
- France
  - ea104
- Scotland
  - ea102
  - ea103

A stylesheet is not required. Validation of user data is not required

(16 marks)

## Question 2

- (a) What are the differences between XML and JSON?

(10 marks)

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

```
< ?php
    function a()
    {
        function b()
        {
            echo 'I am b';
        }
        echo 'I am a';
    }
    a();
    a();
?>
i. I am b
ii. I am bI am a
iii. Error
iv. I am a Error
```

(4 marks)

- (c) Write a well-formed XML document and JSON object that represents the data shown in Figure 1.

(16 marks)

Hospital bill for John Smith			
Date of Service	Service	ID	Price
20/05/2019	Ultra sound scan	122837	€200
21/05/2019	Operation	126281	€1100
Total Charge			€1300

Figure 1

### **Question 3**

- (a) 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)

- (b) Which one of the following statements is used to create a table?

- i. CREATE TABLE table\_name (column\_name column\_type);
- ii. CREATE table\_name (column\_type column\_name);
- iii. CREATE table\_name (column\_name column\_type);
- iv. CREATE TABLE table\_name (column\_type column\_name);

(4 marks)

- (c) A *Recruit table* contains four columns: *StudentID*, *DepartmentID*, *StudentName* and *CAOPoints*. Write code for a PHP Page that selects all the rows from the Recruit table with CAOPoints more than 450 and displays the rows as a table on a HTML page.

(16 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 to 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) Which one of the following functions will convert a string to all uppercase?

- i. `strtoupper()`
- ii. `uppercase()`
- iii. `str_uppercase()`
- iv. `strupercase()`

(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?

Shipping information  
First Name  Last Name  Address  City  State  Zip code

Special delivery instructions

Payment information  
Credit card number  Expires  12/10

**Figure 2**