

DUBLIN INSTITUTE OF TECHNOLOGY
KEVIN STREET, DUBLIN 8.

BSc (Honours) Degree in Computer Science

Year 2

SEMESTER EXAMINATIONS 2013/2014

WEB DEVELOPMENT 2

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Wednesday 8th January 9.30 a.m. – 11.30 a.m.

Time Allowed: 2 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) 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) Define and describe the Uniform Resource Locator (URL) vs Hostname

(10 marks)

- (c) What is the output of the following code?

```
<?php
function x10(&$number)
    $number *= 10

$count = 5;
x10($count);
echo $count;
?>
```

- i. Error: Unexpected T_VARIABLE
- ii. 10
- iii. Notice regarding pass by reference
- iv. 50
- v. 5

(4 marks)

- (d) There is a user table in MySQL database, in which there are four columns (ID, UserName, Pass, Name). There are approximated 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 displays "That user does not exist in our database. [Click Here to Register](#)".
- Includes appropriate error processing.

(16 marks)

Question 2

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

(12 marks)

- (b) Which of the following is not valid syntax for creating a new array key?

- i. `$a[] = "value";`
- ii. `$a{} = "value";`
- iii. `$a[0] = "value";`
- iv. `$a{0} = "value";`
- v. `$a[$b = 0] = "value"`

(4 marks)

- (c) What is the output of the following code?

```
function oranges(&$oranges = 17)
{
    $oranges .= 1;
}
$apples = 5;
oranges($apples);
echo $apples++;
```

- i. 16
- ii. 51
- i. 6
- ii. 5

(4 marks)

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

(10 marks)

Car Service Invoice				
S/No Parts and Services		Qty	Unit Price	Amount
1	Engine Oil SAE 30	4 litres	\$7.00	\$28.00
2	Spark Plugs	4Ea	\$4.00	\$16.00
3	Air Filter	1 Sets	\$25.00	\$25.00
4	Coolant	14L	\$16.00	\$16.00
Labour Charges				\$65.00
Total				\$150.00

Figure 1

Question 3

- (a) Explain the differences between *dynamic* web applications and *static* web applications as used in web application development. In your answer, provide an example of each.

(6 marks)

- (b) Consider the following script:

```
<?php
try {
    $dbh = new PDO("sqlite::memory:");
} catch(PDOException $e) {
    print $e->getMessage();
}

$dbh->query("CREATE TABLE foo(id INT)");
$stmt = $dbh->prepare("INSERT INTO foo VALUES(:value)");
$value = null;
$data = array(1,2,3,4,5);
$stmt->bindParam(":value", $value);

/* ?????? */
try {
    foreach($data as $value) {
        /* ????? */
    }
} catch(PDOException $e) {
    /* ??????? */
}

/* ?????? */
?>
```

What lines of code need to go into the missing places above in order for this script to function properly and insert the data into the database safely?

- i. `$dbh -> beginTransaction();`
- ii. `$dbh -> commit();`
- iii. `$stmt -> execute();`
- iv. `$dbh -> rollback();`
- v. `$dbh -> query($stmt);`

(8 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 400 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 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) Which functions would be needed to translate the following string:

I love PHP

to the following?

PHP EVOL I

- mirror()
- strtoupper()
- toupper()
- str_reverse()
- strrev ()

(4 marks)

(c) . Which key will not be displayed from the following code block?

```
<?php
$array = array('a' => 'John',
               'b' => 'Coggeshall',
               'c' => array('d' => 'John',
                           'e' => 'Smith'));

function display($item, $key) {
    print "$key => $item\n";
}

array_walk_recursive($array, "display");
?>
```

- i. d
- ii. c
- iii. b
- iv. a
- v. they will all be displayed

(4 marks)

(d) Figure 2 shows the web page used for a “A Simple Rating System in PHP”. Before we begin, the MySQL database has been created and some data has been added by the code below:

```
CREATE TABLE vote (id INT(4) NOT NULL AUTO_INCREMENT PRIMARY KEY,
name VARCHAR(30), total INTEGER, votes INTEGER)

INSERT INTO vote (name, total, votes) VALUES ( "First item", 45, 10 ),
( "Second item", 15, 4 ), ( "Third thing", 25, 7 ), ( "The Forth", 20,
5 ), ( "Fifth Thing", 0, 0 )
```

Please read the code below carefully and identify **twelve** errors in the code that will prevent the page from compiling and/or running successfully.

(12 marks)

Name: First item
 Current Rating: 4.2
 Rank Me: Vote 1 | Vote 2 | Vote 3 | Vote 4 | Vote 5

Name: Second item
 Current Rating: 3.4
 Rank Me: Vote 1 | Vote 2 | Vote 3 | Vote 4 | Vote 5

Name: Third thing
 Current Rating: 3.3
 Rank Me: Vote 1 | Vote 2 | Vote 3 | Vote 4 | Vote 5

Name: The Forth
 Current Rating: 3.7
 Rank Me: Vote 1 | Vote 2 | Vote 3 | Vote 4 | Vote 5

Figure 2

```

<php?
// Connects to your Database
mysqlconnect("your.hostaddress.com", "username", "password") or
die(mysqlerror());

//We only run this code if the user has just clicked a voting link
if ( $mode="vote")
{

//If the user has already voted on the particular thing,
//we do not allow them to vote again      $cookie = "Mysite$id";
    if(isset($_COOKIE[$cookie]))
    {
        Echo "Sorry You have already ranked that site <p>";
    }

//Otherwise, we set a cookie telling us they have now voted
    else
    {
        $month = 259 + time();
        setcookie(Mysite.$id, Voted, $year);
    }
}

```



```

        //Then we update the voting information by adding 1 to the total votes
        //and adding their vote (1,2,3,etc) to the total rating
        mysqlquery ("UPDATE vote PUT total = total+$voted, votes = votes+1 WHERE
id = $id");
        Echo "Your vote has been cast <p>";
    }

}

//Puts SQL Data into an array
$data = mysqlquery("SELECT * FROM vote") or die(mysqlerror());

//Now we loop through all the data
while($ratings = mysqli_fetch_array( $data ))
{

    //This outputs the sites name
    Echo "Name: " . $ratings['names'] . "<br>";

    //This calculates the sites ranking and then outputs it - rounded to 1
    decimal
    $current = $ratings[total] / $ratings[votes];
    Echo "Current Rating: " . round($current, 1) . "<br>";

    //This creates 5 links to vote a 1, 2, 3, 4, or 5 rating for each
    particular item
    Echo "Rank Me: ";
    Echo "<a
href=\"$_SERVER['PHP']\"?mode=vote&voted=1&id=\".$ratings[id].\">Vote 1</a> |
";
    Echo "<a
href=\"$_SERVER['PHP_SELF']\"?mode=vote&voted=2&id=\".$ratings[id].\">Vote
2</a> | ";
    Echo "<a
href=\"$_SERVER['PHP_SELF']\"?mode=vote&voted=3&id=\".$ratings[id].\">Vote
3</a> | ";
    Echo "<a
href=\"$_SERVER['PHP']\"?mode=vote&voted=4&id=\".$ratings[id].\">Vote 4</a> |
";
    Echo "<a
href=\"$_SERVER['PHP_SELF']\"?mode=vote&voted=5&id=\".$ratings[id].\">Vote
5</a><p>";

    ?>

```