

UNIVERSITY OF RUHUNA
BACHELOR OF SCIENCE (BSC) (GENERAL) DEGREE LEVEL III (SEMESTER I)
EXAMINATION – AUGUST 2017

COURSE UNIT: COM311β (Internet Programming and Web Technologies)
TIME: 2 Hours

Answer four Questions Only.

1.
 - a. State whether each of the following variable names are valid or invalid. Give reasons for each variable that found to be invalid.
 - i. summer\$
 - ii. \$motor?
 - iii. \$_4
 - iv. \$sub-total
 - v. \$gross_amount
 - vi. %batch_43
 - b. Explain the PHP process flow using a diagram.
 - c. Write the expected output of following PHP code segments.
 - i.

```
$name="Piyal";  
echo "Hello ".$name;
```
 - ii.

```
$name="Piyal";  
echo "Hello ". "<br>". $name;
```
 - iii.

```
$X=5; $Y= 2;  
echo $X *$Y + 1;
```
 - d. Using **conditional** statements, write a PHP script to calculate provident fund contribution as describe below.

The employees of a company has to contribute to the provident fund as a percentage of their salary. Based on the age group of an employee, the percentage is changing as given in below. Display a suitable message if the age of an employee does not fall within any age group given below.

Service Group	Percentage
20- 35	15%
36- 50	10%
Above 50	8%

2.

a. Write the expected output of followings.

```
$var = " Science Faculty ";  
$name = "Asela Perera";
```

- i. echo **trim**(\$var);
- ii. echo **ltrim**(\$var, "Sci");
- iii. echo **strlen**(\$name);
- iv. echo **rtrim**(\$name, "Perera");
- v. echo **strtoupper** (\$name);

b. Explain the difference of the outputs at line 4 and 5.

```
1. function getMakrs($avgMark = 40) {  
2.     echo "The mark is : $avgMark <br>";  
3. }
```

```
4.     getMakrs(60);  
5.     getMakrs();
```

c. Employee's annual salary increment is calculated as given below. Annual bonus of them is calculated 10 times of their increment and a fixed amount based on their performance category as describe below.

Annual salary increment = Basic Salary * 5%

Annual bonus:

Employees with **excellent** performance = Annual salary increment * 10 + 10000

Employees with **good** performance = Annual salary increment * 10 + 5000

Other employees = Annual salary increment * 10

- i. Write a suitable PHP function to compute the annual salary increment.
- ii. Write PHP code segment with **Switch** statement to compute the annual bonus. You should use the function wrote in c).i. above.

d. Describe a feature of anonymous function with an example.

3.

a. Explain the functionality of the following array operations with an example taken from the array given below.

```
<?php  
$four_seasons=array("winter","spring","summer","autumn");  
?>
```

- | | |
|------------|---------------|
| i. current | iii. previous |
| ii. next | iv. end |

b.

- i. Write PHP code segment to store data in table given below, using multi-dimensional array concept. (only the array definition is sufficient)

Student No	Level	Degree
SC5678	III	BSC
SC5890	II	BA
SC6000	II	BCOM
SC5402	I	BCS

- ii. Using the array you wrote in 3.) b. i above, display the data as shown below. The code should be able to handle any number of data stored in the array.

Student SC5678 in Level III follows BSC degree.

c.

- i. What is the most suitable array concept to store the data given below?

Temperature	35
Humidity	80%
Wind	16Km/h
Sunny	Yes

- ii. Using the array concept you mentioned in 3.) c. i above, write PHP code segment to store the data given in the table above.
- iii. Write PHP code segment to display the array values as shown below.
- Temperature: 35
Humidity:80%
Wind: 16Km/h
Sunny: Yes

d.

- i. What is meant by **well-formed** and **valid** XML document?
- ii. Write a suitable XML DTD to define a XML document structure to describe the weather record given in 3.) c.i. above.
- iii. Using the DTD you wrote in 3.)d.ii, above, create a XML document to store the weather data as given in the table 3.) c.i above.

4.

a.

- i. List two (2) differences between GET and POST methods used in HTML Form handling.
- ii. A student has designed a Login form with a username field and a password field for his web application. What is the most appropriate

form method that he should use? Briefly explain the reason for your answer.

b. Briefly describe the following with respect to PHP.

- i. `$_REQUEST` super global variable
- ii. `isset()` function
- iii. **action** attribute in the **form** tag
- iv. `extract()` function
- v. `$_SERVER["PHP_SELF"]`

c. Consider the following HTML form given below.

Enter Student Marks Here!

Name :

Mathematics :

Science :

English :

Labels on the right: stu_name, stu_maths, stu_science, stu_english, cmd_result

Assume that, the above form uses GET method in submitting information and the submitted information is sent to Result.php. The textboxes and the submit button have been named as in the above diagram. The data items: Name, Mathematics marks, Science marks and English marks are taken as the inputs from the user.

- i. Write a PHP code segment for Result.php to check whether the Submit button (cmd_result) of above form has been clicked.
- ii. Using the data sent by the textboxes of the form, write a PHP code segment to calculate the average marks of Mathematics, Science and English.
- iii. Final grade of a student is calculated based on the average of the above three subjects as follows.
 - ❖ Average ≥ 40 : Pass
 - ❖ Average < 40 : Fail

Assuming that the average of the above three subjects is stored in a variable called \$avg_mark, write a PHP script to determine the grade of a student.

- d.
- i. Explain how PHP Sessions work.
 - ii. Assume that, there is a session variable called "country", in Home.php, which has been assigned some value. The value of this session variable has to be printed in Welcome.php according to the following format.
Welcome to <<value of country variable>>

Write a PHP script for **Welcome.php** for performing this task

- iii. Briefly describe **two (2)** types of **Cookies** used in web applications.
- iv. Describe how **Cookies** can be used in **Personalization** tasks of web applications.

5.

- a. Using an appropriate diagram, explain the **Web Database Architecture**.

b.

- i. Name two (2) database technologies supported by PHP other than MySQL.
- ii. Briefly describe what "phpMyAdmin" is.
- iii. State the PHP functions used for connecting to a MySQL server and selecting a MySQL database from the MySQL server. Clearly state the parameters used in each of these functions.
- iv. Describe the difference between Alter and Drop statements used in MySQL queries.

- c. Briefly describe the functionalities of the following PHP built in functions.

- i. `mysql_get_server_info ()`
- ii. `mysql_error ()`
- iii. `mysql_field_name ()`
- iv. `mysql_fetch_row()`

- d. Assume that, there's a MySQL database server hosted in a machine at "10.33.21.4". This server has an account which has "uni_user" as the username and "uni_pass" as the password. The server also has a database called "student_mgt" with a table called "student_marks". The fields of "student_marks" and their corresponding usages are as follows.

- i. Write a PHP script called `conn.php` to connect to the given MySQL server. Your script should stop executing when it is not possible to connect the server.
- ii. Write a PHP code segment to execute a MySQL query to obtain each row (tuple) in `student_marks` table with all its fields. Assume that, the variable `$con` has the communication link to the database server.

- iii. Suppose the result of the query execution in (d) (iii) above is stored in a variable called \$result. Write a PHP code segment to display each row (tuple) in \$result with all its field data.

Field Name	Usage
stu_id	Store student's Index number
course_code	Store course code
marks	Store marks obtained by the student specified by stu_id for the course specified by course_code

❖ *Note: Use procedural style of MySQL Library functions*