PAN AFRICA CHRISTIAN UNIVERSITY

BACHELOR OF BUSINESS INFORMATION TECHNOLOGY AND BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

END OF TERM EXAMINATION

DEPARTMENT: **COMPUTING & INFORMATION TECHNOLOGY**

COURSE CODE: **BSIT 307**

CAMPUS: **ROYSAMBU**

COURSE TITLE: **ADVANCED WEB APPLICATION DEVELOPMENT**

EXAM DATE: **FRIDAY,XXXX,APRIL ,2025**

TIME: **5:00PM -7:00PM**

INSTRUCTIONS

- This exam script has **TWO (2)** sections.
- Read all questions carefully before attempting.
- Answer All questions in Section **A** and any other THREE questions in Section **B.**
- Write only your **student number** on the answer booklet provided.

SECTION A (Answer ALL questions)

QUESTION ONE (15 Marks) Compulsory

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a) Study the PHP code below and answer the questions that follow

```
<?php
$conn = mysqli_connect("localhost", "root", "", "company_db");

if(!$conn){
    die("Connection failed: " . mysqli_connect_error());
}

$sql = "INSERT INTO employees (first, last, position)
        VALUES ('John', 'Doe', 'Manager')";

if(mysqli_query($conn, $sql)){
    echo "Record added successfully";
} else {
    echo "Error: " . mysqli_error($conn);
}

mysqli_close($conn);
?>
```

Required:

Describe the purpose of each of the following statements in the code above:

i. mysqli_connect() (2 Marks)

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ii. mysqli_query() (2 Marks)
iii. mysqli_close() (2 Marks)

b) The development team must choose between HTML4 and HTML5.
Justify why HTML5 would be more suitable for this project, using practical examples.

(4 Marks)

c) Identify THREE ethical issues that may arise in running this online marketplace and propose mitigation measures. (3 Marks)

d) Explain the output of the code below: (2 Marks)

```
<?php
$numbers = array(10, 20, 30);
$total = 0;

foreach ($numbers as $num) {
    $total += $num;
}

echo "Total = " . $total;
?>
```

SECTION B
(ANSWER ANY THREE (3) QUESTIONS IN THIS SECTION)
QUESTION TWO (15 marks)

a) A university department wants to redesign its website using a user-centred design approach. Explain how interaction design and responsive design would improve user experience for students accessing the site on mobile devices. (6 Marks)

b) Describe the web design process that should be followed from requirement gathering to deployment. (5 Marks)

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c) The website must include image rollovers and dynamic menus. Explain how JavaScript and CSS3 can be used to implement these features. (4 Marks)

QUESTION THREE (15 Marks)

a) Write a JavaScript program that checks whether a given number is a Prime Number. (6 Marks)

b) Design a simple architecture diagram showing:

- Client browser
- Web server
- Server-side script
- Database server (4 Marks)

c) Explore THREE security risks associated with database-driven websites and explain how input validation can prevent them. (5 Marks)

QUESTION FOUR (15 Marks)

a) Explain the use of GET and POST methods in HTTP, providing relevant examples.

(5 Marks)

b) The agency is considering using a Content Management System (CMS).Discuss FOUR advantages of using a CMS instead of manually coding every page. (4 Marks)

c) Describe THREE publishing and maintenance activities required to manage this web-based project successfully. (6 Marks)

QUESTION FIVE (15 Marks)

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a) A financial institution is developing an online banking portal. Explain how HTML5, CSS3, and JavaScript work together to create an interactive and secure login page.

(6 Marks)

b) Discuss FOUR techniques that should be implemented to ensure secure data transmission and protect customer privacy. (5 Marks)

c) Explain TWO types of cybercrime that could target this banking portal and suggest preventive strategies. (4 Marks)

QUESTION SIX (15 Marks)

a) An NGO plans to develop an informational website targeting rural communities with limited internet connectivity. Discuss FOUR design techniques that ensure accessibility and usability under low bandwidth conditions. (4 Marks)

b) Write a code which will design a responsive web page layout using HTML5 for structure, CSS3 for styling, and PHP. (5 Marks)

c) Identify THREE societal impacts of widespread internet access and web technologies. (6 Marks)

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