NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF COMPUTING AND INFORMATICS

DEPARTMENT OF INFORMATICS

QUALIFICATION : BACHELOR OF INFORMATICS AND BACHELOR OF IT IN BUSINESS COMPUTING	
QUALIFICATION CODE: 07BAIF and 80BSBC	**LEVEL:** 7
COURSE: Enterprise Web Application Development	**COURSE CODE**: EWD621S
DATE: JANUARY 2020	**SESSION:** 2
DURATION: 3 Hours	**MARKS:** 100

SECOND OPPORTUNITY/SUPPLEMENTARY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Mrs. Katazo Amunkete and Mr. Veerabhadram Paduri
MODERATOR:	Mr. Kandetu Tengovandu

INSTRUCTIONS
1. Answer ALL the questions. 2. Write clearly and neatly. 3. Number the answers clearly. 4. All marks are indicated in brackets at the end of each question. 5. The length of the answer/s must be guided by the available mark/s.

THIS QUESTION PAPER CONSISTS OF 6 PAGES (Including this front page)

SECTION A: STRUCTURED QUESTIONS [45 Marks]

Question 1

Discuss the concept of constraint requirements and provide an example of a constraint requirement. [4 Marks]

Question 2

What is data integration and why is it important for enterprise applications? [2 Marks]

Question 3

Discuss **any two (2)** challenges that an enterprise might encounter when they decide to implement an Enterprise Application (EA). [4 Marks]

Question 4

Distinguish between constants, variables and arrays. [3 Marks]

Question 5

What are the benefits of implementing a Content Management System ? [4 Marks]

Question 6

Define what Business Process Modelling (BPM) is and explain its relevance to web application development. [5 Marks]

Question 7

Differentiate between intranets and extranets. [4 Marks]

Question 8

Different business processes are followed in the departments of different enterprises. Think of a business function in any enterprise and provide an example of a Business Process Model depicting the business processes that are required to achieve that function. [3 Marks]

Question 9

Distinguish between the presentation and data management tiers of enterprise applications (EAs). [4 Marks]

Question 10

Discuss why is it important to carry out the requirements engineering process when developing an enterprise web application? [4 Marks]

Question 11

Discuss **any two (2)** things that can be done with PHP that wouldn't otherwise be possible with HTML. [4 Marks]

Question 12

Explain how the client – server computing model works and produce a diagram to illustrate the client-server relationship. [4 Marks]

SECTION B: PRACTICAL QUESTIONS [40 Marks]

Question 13

Write a PHP script that assigns a string to a variable and displays the message "Welcome to PHP scripting ***(variable declared)***". Add a multi-line comment to explain the function of the script and comment each line of code. [5 Marks]

Question 14

Write a PHP script that assigns the date function to a variable. Use a conditional structure to: [6 Marks]

- inform the user to have a nice weekend if the day is a Friday.
- inform the user to have a nice Sunday if the day is a Sunday.
- inform the user to have a nice day if it is any other day that is not a Friday and neither a Sunday.

Question 15

Write 2 scripts that achieve the following:

a) Script 1: A form that prompts the user for a first name, a username and a password. [5 Marks]

b) Script 2: Once the user clicks on the submit button in the form created in Script 1, Script 2 should display to the screen "Welcome to this simple form ***(name supplied by the user)***". "Your username is ***(username supplied by the user)*** and your password is ***(password supplied by the user)***". [5 Marks]

Question 16

Write down the lines of code that achieve the following (1 mark for each): [4 Marks]

a) create an array called name, the array should contain 5 names.
b) create a cookie called exam containing the value php.
c) start a session.
d) open a file called file2.txt in read-only mode.

Question 17

Write down the lines of code that achieve the following:

a) Create a database called EWD. [1 Mark]
b) Create a table called Second with the following fields: Name, Age, Occupation and Salary. Assign a relevant data type to each field. [3 Marks]
c) Insert values into each of the fields in the table you created in b). [4 Marks]
d) Query the database for the content in the Name and Age fields. [2 Marks]
e) Delete the table that you created in b). [1 Mark]

Question 18

Define what Events are in JavaScript (JS) and provide an example of an event hander used in JS. [4 Marks]

SECTION C: CASE STUDY **[15 Marks]**

Please read the case study below and answer the questions that come below it. Please write the responses in your own understanding. Copying directly from the case will result in a score of zero for that question.

Information Security Measures in PHP Website Design

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In the Internet era, network has spread into all walks of life including both nation and individuals. The bold and resolute advent of network has brought radical changes in people's way of life as well as more convenient internet life, greatly improving people's life quality. Since personal information is exposed to network environment, how to ensure information safety in particularly important. Therefore, in the constant development of internet technology, PHP website design is born at the right moment, whose optimized website design manner has played a vital role in improving reliability and safety of websites. However, it cannot be denied that information security problems still exit in PHP website design. Specifically, in recent years, website establishment of China has become more and more common. The issue of the first national network security law has demonstrated the importance of internet information security as well as importance of national information security. Based on such reasons, how to effectively defend information security in PHP website design has become an issue to be settled urgently.

As dynamic languages, PHP and ASP utilize wamp technology to integrate server and database, which plays an important role in website design optimization. The limited advantages of PHP website design in practical application have exerted positive impact on reliability and safety of websites. Specifically, the rise of network technology in recent years and the advent of network era have greatly transformed people's way of life. Since network spreads all walks of life, individuals and nations have relied heavily on network. The network overcame national boundaries and geographic restrictions, playing an irreplaceable part in promoting integration of world economy. Its wide application in life has hugely enhanced life quality. Under the network era, personal and national information has exposed to network. Once network collapses, information security is easily endangered and national information security even more. It can be seen from the first national network security law in China the importance of national information security as well as attention to website information security payed by the nation. Based on that, how to complete effective information security defense in PHP website design has become an issue demanding prompt solution. Strengthening information security defense in PHP website design from all aspects can effectively avoid impact of adverse factors on website information safety, promote safe and stable operation of websites, reaching important goals of PHP website design and promotion in the real sense.

Though setting of structured language exerts little effect on website running, its loophole will bring serious threats to websites, endangering information security defense of websites. When comes to common applied structured languages in present stage, SQL occupies a major part. Proper application of SQL in PHP website design can offer security of information safety in some degree. But how to integrate these two objects and ensure structured language invasion codes to be given full play has become an issue demanding prompt solution in PHP website design at present. While application statement can make illegal attackers skip password authentication when logging website system. In most cases, relevant login password is set in supervising website information security. Only when administers pass password authentication can information be accessed by users. The reason for program statement directly attacking information security defense lies in that, it utilizes character strings without verification in computer program of website designers. Attackers take it as an attack point to easily break through the supervision of website information security and access information illegally. XSS is short of Cross Site Script Execution, whose fundamental principle is that attackers utilized designed website program to start from insufficient user filtering and break through the information security defense system, directly invading systems and information security of other users. Such behavior usually appears in maliciously embezzlement of user information and website attacking, whose wide coverage seriously effects the website information security. In website information browsing, small-page pop-up windows in web pages (figure 1) actually means that attackers make users be infected Trojan virus in looking through websites by use of cross-site script execution program, thus, causing paralysis of user information security supervision system eventually, exerting adverse impact on website information safety.

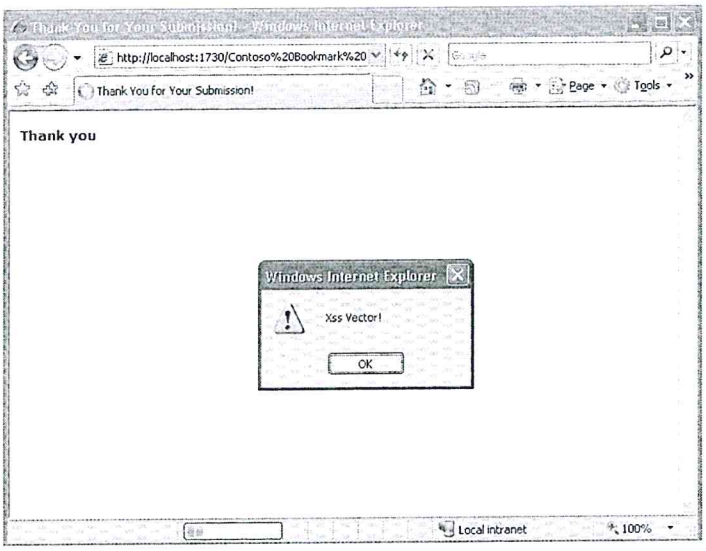

Figure 1

In a word, it is an urgent issue for strengthening information security defense in PHP website design. Whether invasion of structured languages or program statement and cross-site attacks, they will lead to adverse effect on website information security. On the current network context, personal and national information is exposed to network systems. As long as system is attacked or invaded maliciously, information leakage will take place, having a negative impact.

Thus, how to achieve efficient information security defense in PHP website design is associated with its key goals.

Information security measures should be informed to users when they use websites. The main reason is the vital role of user engagement in website information security supervision. If users guide their behaviors in accordance with relevant requirements, they can avoid malicious invasion in some extent. For instance, the pop-up windows in browsing websites is actually a cross-site script execution program. If users click on the pop-up windows, their information will be spied maliciously. The basic principle of cross-site script execution is that attackers utilize insufficient user filtering in the designed website program as an entry point, breaking through information safety defense system of websites and directly invading systems and threating information security of other users. Based on such phenomenon, in the management of PHP website information, it is necessary to inform users of information security defense methods and follow users' data in a legal manner at the same time. The main reason is that network technology has exerted huge impact on people's lifestyle, and the rapid development of network technology has accelerated the progress of human society.

In terms of information security defense in PHP website design, there are numerous problems in this respect. Structured language, program statement or cross-site script execution will have negative effect on information safety of websites. Therefore, adverse factors should be dealt with respectively to strengthen information security defense in website design. For example, major designers must reserve structured language codes in website design to prevent attackers from utilizing invasion of structured language to invade websites. As for defense in cross-site script execution, it is necessary to begin with arousing the enthusiasm of user information management, informing users of relevant measures. In the practical defense and supervision, information security behavior should be normalized to strengthen information security defense in PHP website design in the real life.

----------**End of Case-study**----------

Question 19

(a) What has led to the increase in the use of web applications? [3 Marks]

(b) Discuss the **three (3)** threats that can affect php applications. [6 Marks]

(c) According to the case study, how can the threats identified in b) be overcome? [4 Marks]

(d) What technology was used to combine the webserver and MySQL? [2 Marks]

----------**End of Exam Paper**----------