

TUNKU ABDUL RAHMAN UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

FACULTY OF COMPUTING AND INFORMATION TECHNOLOGY

ACADEMIC YEAR 2022/2023

MAY/JUNE EXAMINATION

AMIT2043 WEB SYSTEMS AND TECHNOLOGIES

MONDAY, 29 MAY 2023

TIME: 6.30 PM – 8.30 PM (2 HOURS)

DIPLOMA IN INFORMATION TECHNOLOGY

DIPLOMA IN INFORMATION SYSTEMS

DIPLOMA IN SCIENCE (INTERNET TECHNOLOGY)

Instructions to Candidates:

Answer **ALL** questions. All questions carry equal marks.

AMIT2043 WEB SYSTEMS AND TECHNOLOGIES**Question 1**

Aaron is a junior web developer, and he has recently been tasked to build an e-commerce application for a pet store. The store owner has provided Aaron with a comprehensive list of requirements, including showcasing products, processing orders, and accepting payment securely. He has decided to build the web application with a user-friendly interface and a scalable backend using PHP and MySQL.

- a) Based on the scenario above, identify a suitable category of dynamic web pages that Aaron can use to achieve the requirements specified by the pet store owner. Then support your answer with appropriate justifications. (5 marks)
- b) With a diagram, explain the steps on how the dynamic web page identified in Question 1 a) is processed. (6 marks)
- c) Based on the dynamic web page identified in Question 1 a), examine the response speed and performance of the page. (4 marks)
- d) Aaron plans to apply both categories of dynamic web pages to the e-commerce application. Discuss with Aaron the benefit of utilising both categories of dynamic web pages in the project. (4 marks)
- e) Suggest a suitable protocol for Aaron to allow data exchange in his e-commerce application through the web. Justify your suggestion with proper explanations. (6 marks)

[Total: 25 marks]

Question 2

- a) Explain **THREE (3)** rules when declaring a variable in PHP. (6 marks)
- b) If a PHP variable is declared without assigning a value, what will be the default value held in the memory? (2 marks)
- c) Discuss how a regular variable is different from a constant variable in PHP. In your discussion, provide **ONE (1)** example of a regular variable and **ONE (1)** example of a constant variable. (6 marks)
- d) Ternary operator in PHP is different from the traditional if-else statements. Write **ONE (1)** example of a ternary operator and discuss when the developer should use it and when they should prevent it. (6 marks)
- e) Write PHP code to declare an index array representing students' names which consist of "Yan Yong", "Abu", "Vengados", and "Yaa Ter". Then sorts the array in descending order and displays all the names in an unordered list. (5 marks)

[Total: 25 marks]

Question 3

Based on the figure below, answer the following questions:

Member Registration

Name:

Gender: ☐ Male ☐ Female

Email:

Phone Number:

Password:

Confirm Password:

Figure 1: registration.php

- a) Explain **TWO (2)** essential attributes that should be included in the form tag when creating the HTML form as illustrated in Figure 1. (4 marks)
- b) Examine the following validation requirements and use the `preg_match()` function to validate the submitted user input:

Field	Validation Requirements
name	<ul style="list-style-type: none"> Contains only space, uppercase and lowercase alphabet The first two characters must be an alphabet <p><i>NOTE: You should achieve the validation rules using ONE (1) <code>preg_match</code> function and return true if the input fulfilled the validation rules. Else, return false.</i></p>
phone_number	<ul style="list-style-type: none"> Starts with four digits followed by a hyphen and end with either seven or eight digits The first three characters must be 601 Eg: 6010-1234567 Eg: 6011-12345678 <p><i>NOTE: You should achieve the validation rules using ONE (1) <code>preg_match</code> function and return true if the input fulfilled the validation rules. Else, return false.</i></p>

(10 marks)

AMIT2043 WEB SYSTEMS AND TECHNOLOGIES**Question 3 (Continued)**

- c) Other than the validation specified in Question 3 b), propose additional **THREE (3)** validation that can be implemented in Figure 1. (6 marks)
- d) External files, such as header.html, footer.html, and db_config.php, can be integrated into Figure 1 by using the include() and require() functions.

Justify why external files should be used to hold standard procedures. (5 marks)

[Total: 25 marks]

Question 4

- a) "Cookies and sessions can turn a web application from stateless to stateful."
- (i) Evaluate the statement above and elaborate on how a cookie differs from a session in PHP. (6 marks)
 - (ii) Discuss how a cookie can be set and retrieved in PHP. (4 marks)
 - (iii) Identify **TWO (2)** examples of web features that can be achieved through cookies and sessions. (4 marks)
- b) Write jQuery code to achieve each of the following effects:
- (i) Change the background colour of all paragraphs on a webpage to light blue when a button with the ID "btnColor" is clicked. (4 marks)
 - (ii) Toggle the visibility of a div element with the ID "divCart" when a button with the ID "btnCart" is double-clicked. (4 marks)
- c) What does AJAX stand for, and how does an AJAX-enabled web page differ from the classic one? (3 marks)

[Total: 25 marks]