

**FINAL EXAMINATION****BACHELOR OF INFORMATION TECHNOLOGY (HONOURS) IN COMPUTER
APPLICATION DEVELOPMENT****COURSE : PYTHON PROGRAMMING LANGUAGE****COURSE CODE : SWC3643****DURATION : 3 HOURS****INSTRUCTIONS TO CANDIDATES :**

1. This question paper consists of **FIVE (5)** questions.
2. Answer ALL questions in Answer Booklet provided.
3. Please check to make sure that this examination pack consists of:
 - i. The Question Paper
 - ii. An Answer Booklet
4. Do not bring any material into the examination hall.
5. Please write your answer using permanent ink.

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This question paper consists of 6 printed pages including the front page

QUESTION 1

- a. Describe **THREE (3)** philosophies of Python's coding. (6 marks)
- b. Identify **TWO (2)** fields in which Python is widely used. (2 marks)
- c. Discuss **THREE (3)** Python distribution package environments and explain **ONE (1)** situation in which each is **BEST** used. (6 marks)
- d. Analyze the following Python expression and determine its evaluated result.

```
final_amt = (12 / 3) + 4 > 7 and 14 % 7 == 0
```

(6 marks)

(Total : 20 marks)

QUESTION 2

- a. Describe **TWO (2)** purposes of variables in Python.

(4 marks)

- b. The following output is produced by a Python program:

```
Assalamualaikum, Dunia!  
Length of String: 23  
Uppercase: ASSALAMUALAIKUM, DUNIA!  
First 5 characters: Assal
```

Write a Python code segment that generates and display the above output.
(Hint: Use a variable called `greeting` and apply string operations.)

(6 marks)

- c. Consider the scenario below:

Tech Academy awards scholarships based on students' exam scores and participation in extracurricular activities. The scholarship criteria as follows:

1. Students who score of **85 or above** qualify for a scholarship:
 - If they participate in extracurricular activities, they receive **RM3,000**.
 - Otherwise, they receive **RM2,000**.
2. Students who score between **70 and 84** may still be eligible:
 - If they participated in extracurricular activities, they receive **RM1,000**.
3. Students who score **below 70**, do not qualify for any scholarship.

- i. Write a Python code segment that accepts a student's exam score and extracurricular participation (Yes/No) as input.

(2 marks)

- ii. Write a Python code segment that determines the scholarship amount based on the criteria provided, using the `if-elif-else` statement.

(6 marks)

- iii. Write a Python code segment that displays the final scholarship amount in Ringgit Malaysia (RM), formatted to two decimal places.

(2 marks)

(Total: 20 marks)

QUESTION 3

- a. Consider the following Python code segment:

```
total = 0
for i in range(1, 6):
    square = i * i
    total += square
    print("i =", i, "Square =", square, "Total =", total)
```

- i. Predict the output of the program. (5 marks)
- ii. Briefly explain how the loop works in the given Python code. (5 marks)
- b. Consider the scenario below.

A bookstore offers a loyalty program in which customers earn points based on the number of books they purchase. Each book earns **10 points**. If a customer buys **5 books or more**, they receive an extra **50 bonus points**. The system should repeatedly prompt the user to enter the valid number of books (greater than 0).

- i. Write a Python code segment using a `while` loop to repeatedly prompt the user to enter the number of books purchased until a valid value is entered. (4 marks)
- ii. Write a Python code segment to calculate the total points earned, including any applicable bonus points. (4 marks)
- iii. Write a Python code segment to display the final points earned. (2 marks)

(Total : 20 marks)

QUESTION 4

- a. Define a **function** in Python and explain why functions are useful. (2 marks)
- b. Differentiate between a **parameter** and **return a value** in functions. Provide **ONE (1)** example of each. (4 marks)
- c. Explain the difference between **local variables** and **global variables** in terms of scope and lifetime. (4 marks)
- d. A school wants to calculate and display the average score of a student in a subject. Write a Python code segment that uses **functions** and **modules** to perform the following tasks:
- i. a function `calculate_average(marks)` that takes a list of marks as a parameter and returns the average score. (2 marks)
 - ii. a function `display_result(name, average)` that prints the student's name and his/her average score. (3 marks)
 - iii. assuming the two functions in **QUESTION 4.d.i** and **ii** have been saved into a module named `student_module.py`. Write a Python code segment to import the module and call the functions for a student named "Ali" with marks [80, 75, 90, 85]. (5 marks)

(Total : 20 marks)

QUESTION 5

- a. Explain the purpose of **tuples** and **dictionaries** in Python data structures. (4 marks)
- b. A car showroom keeps information about a car in a **dictionary**. Write a Python code segment that creates and display a dictionary named `Car` with the following keys: `brand`, `model`, and `price`. (2 marks)
- c. Based on **QUESTION 5.b**, describe the following operations in a simple Python statement:
- Add a new key-value pair for the car's `color` and display the updated dictionary. (2 marks)
 - Update the value of the `price` and display the updated price. (2 marks)
 - Remove the `model` key from the dictionary and display the updated dictionary. (2 marks)
- d. Write a Python program that defines a function name `read_file (file_path)`. The function should read a text file called `notes.txt` and prints its content line by line. Include appropriate error handling for the following cases:
- File not found
 - Permission denied
 - Any unexpected error

Provide appropriate messages for each error.

(8 marks)

(Total : 20 marks)

(TOTAL :100 MARKS)

END OF QUESTION PAPER