

**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.

MYKAD/ PASSPORT NO. : _____**ID. NO. :** _____**LECTURER :** _____**SECTION :** _____

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

QUESTION 1

- a. Describe **THREE (3)** reasons why Python is considered a beginner-friendly programming language.
(6 marks)
- b. Identify **TWO (2)** characteristics of the ABC programming language that influenced the design of Python.
(2 marks)
- c. Discuss **TWO (2)** advantages and **ONE (1)** limitation of Google Colab as a Python development environment.
(6 marks)
- d. Analyze the following Python code and determine the output.

```
final_amt = (25 / 5) + 3 > 10 and 10 % 3 == 0  
print(final_amt)
```

(6 marks)

(Total : 20 marks)

QUESTION 2

- a. Describe the data type of each variable used in the following Python code:

```
message = "Hello"  
score = 95  
is_ready = True
```

(6 marks)

- b. Write a Python code segment to generate the output below:
(Hint: Use a variable called `greeting` with the value "Welcome" and display its original value.)

```
Welcome  
WELCOME  
welcome
```

(4 marks)

- c. Consider the scenario below.

A hiking club awards achievement badges based on the number of mountains climbed and participation in environmental conservation activities. The rules are:

1. Participants who climb 5 or more mountains receive:
 - A Gold Badge if they participate in conservation activities.
 - A Silver Badge otherwise.
2. Participants who climb 3 to 4 mountains receive:
 - A Bronze Badge if they participated in conservation activities.
3. Participants who climbed fewer than 3 mountains do not receive any badge.

- i. Write a Python code segment that accepts the number of mountains climbed and conservation activity participation (Yes/No) as input.

(2 marks)

- ii. Write a Python code segment that determines the badge awarded using the `if-elif-else` method.

(6 marks)

- iii. Write a Python code segment that displays the badge awarded to the participant.

(2 marks)

(Total: 20 marks)

QUESTION 3

- a. Ejen Ali is undergoing a training mission at MATA Academy. During each training level, he earns points based on the training level completed. The following Python program calculates the points earned at each level and the total accumulated points throughout the mission.

```
total_points = 0

for level in range(1, 6):
    points = level * 10
    total_points += points
    print("Level =", level, "Points =", points, "Total Points",
          "=", total_points)
```

- i. Determine the value of `points` when:

- `level = 2`
- `level = 5`

(2 marks)

- ii. Calculate the value of `total_points` after:

- The first iteration
- The third iteration
- The fifth iteration

(3 marks)

- iii. Predict the complete output produced by the program.

(5 marks)

- b. Consider the scenario below.

A university charges students RM150 per professional certification course. Students must register for at least one course. Students who register for 4 or more courses receive a 10% discount on the total registration fee.

- i. Write a Python code segment using a `while` loop to repeatedly prompt the user to enter the number of courses until a valid value (greater than 0) is entered.

(4 marks)

- ii. Write a Python code segment to calculate the total registration fee after applying any eligible discount.

(4 marks)

- iii. Write a Python code segment to display the final registration fee.

(2 marks)

(Total : 20 marks)

QUESTION 4

- a. Define a Python **module** and explain **ONE (1)** advantage of using modules in a program.
(2 marks)
- b. Differentiate between **built-in** modules and **third-party/pre-installed** modules. Give **ONE (1)** example of each.
(4 marks)
- c. Explain the purpose of the following **built-in** Python modules:
- i. `math`
(2 marks)
 - ii. `random`
(2 marks)
 - iii. `datetime`
(2 marks)
- d. Write a Python code segment that uses modules to perform the following tasks:
- i. a lecturer wants to create a simple program that generates and display a random quiz question number between 1 and 20.
(4 marks)
 - ii. a company wants to obtain and display the current date and time whenever a user logs into its system.
(4 marks)

(Total : 20 marks)

QUESTION 5

- a. Differentiate between **tuples** and **lists** in Python based on the following characteristics:
- Performance
 - Memory usage
- (4 marks)
- b. A hiking club stores information about a hiking trail in a dictionary. Write a Python code segment that creates a dictionary named `trail` with the following keys: `trail_name`, `distance`, and `difficulty`.
- (2 marks)
- c. Based on **QUESTION 5.b**, write a Python statement to:
- add a new key-value pair for the estimated hiking duration.
- (2 marks)
- update the trail distance.
- (2 marks)
- remove the `difficulty` key from the 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 `hiking_log.txt` and display its content line by line. Include appropriate error handling for the following cases:
- File not found
 - Permission denied
 - Any unexpected error

Display appropriate error messages for each case.

(8 marks)

(Total : 20 marks)

(TOTAL :100 MARKS)

END OF QUESTION PAPER