NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF COMPUTING AND INFORMATICS

DEPARTMENT OF SOFTWARE ENGINEERING

QUALIFICATION: BACHELOR OF COMPUTER SCIENCE, BACHELOR OF INFORMATICS	
QUALIFICATION CODE: 07BCMS, 07BAIT	**LEVEL:** 5
COURSE: INTRODUCTION TO COMPUTING	**COURSE CODE:** ICG511S
DATE: JULY 2024	**PAPER:** THEORY
DURATION: 3 HRS	**MARKS:** 75

SUPPLEMENTARY / SECOND OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	**Mr MIKE KALE**
MODERATOR	**Mr PETER GALLERT**

THIS QUESTION PAPER CONSISTS OF 8 PAGES
(Including this front page)

INSTRUCTIONS TO STUDENTS

1. Read all the questions, passages, scenarios, etc., carefully before answering.
2. Answer all the questions.
3. Number each answer clearly and correctly.
4. Write neatly and legibly.
5. Making use of any crib notes may lead to disqualification and disciplinary action.
6. Use the allocated marks as a guideline when answering questions.
7. Looking at other students' work is strictly prohibited.

SECTION A: Multiple choices and True and false Questions [10 Marks]

- *Answer all the questions in the provided booklet.*
- *The section consists of 10 questions.*

1. What does the term Algorithm mean? **[1 Mark]**

   A. It is a set of steps to solve a problem.

   B. Identifying patterns within your pseudocode.

   C. Solving a problem in programming code.

   D. It is making sure you fully understand a problem.

2. Which of the following is the correct naming convention of a function? **[1 Mark]**

   A. MyFunction [ ]

   B. MyFunction ( )

   C. myFunction [ ]

   D. myFunction ( )

3. What is the output of the following pseudocode? **[1 Mark]**

```
e = 5
f = 10
IF (e < f AND f < 2) THEN
        DISPLAY "Green"
ELSE
        DISPLAY "Red"
ENDIF
```

   A. Green

   B. Red

   C. Green Red

   D. No output

4. The process of breaking down large programs into modules is known as **[1 Mark]**

   A. Modularisation
   B. Declaration
   C. Initialisation
   D. Incrementation

5. Which of the following statements is correct. **[1 Mark]**

   A. My Name = "James"
   B. myName = 'James'
   C. myName = James
   D. myName = "James"

6. The value of a string variable can be surrounded by single quotes. **[1 Mark]**

   A. True
   B. False

7. A variable is used to store a value.

   A. True
   B. False

8. When changing a variable, only incrementing by 1 is allowed. **[1 Mark]**

   A. True
   B. False

9. Parameters are specified after the function name, inside parentheses. **[1 Mark]**

   A. True
   B. False

10. A local variable is a variable that is declared inside a function and is accessible to all functions. **[1 Mark]**

A. True

B. False

SECTION B: Structured Questions [65 Marks]

- *Answer all the questions in the provided booklet.*
- *The section consists of 8 questions.*

1. Convert the following nested IF statement to a **combined IF statement (Unnest the following nested IF statement). [4 Marks]**

```
IF (finalMark >= 50) THEN
    IF(examMark >= 40) THEN
        DISPLAY "Pass."
    ENDIF
ENDIF
```

2. Write a pseudocode that will assist a car dealership company to determine the selling price of a vehicle based on the brand. The program should accept the brand and price of a vehicle from a user and calculate the selling price of that vehicle. If the user enters a brand other than Audi, BMW or Mercedez Benz, the program should display "Invalid brand". The program should then display the brand and the selling price of the vehicle to the screen. The selling price is calculated by subtracting the discount from the price of the vehicle.

Your pseudocode must satisfy all the rules below.

- If the brand is an Audi, the discount is 5%.
- If the brand is a BMW, the discount is 6%.
- If the brand is a Mercedez Benz, the discount is 7%.

a. Identify the inputs and outputs in the problem above. **[4 Marks]**

b. Write a complete pseudocode for the problem above. **[10 Marks]**

3. Covert the following pseudocode into a flowchart. **[6 Marks]**

```
Start
    count = 10
    WHILE (count <= 20)
        DISPLAY count
        count = count + 1
    ENDWHILE
End
```

4. Convert the following Case Structure **to** a **Linear IF Statement pseudocode**. **[9 Marks]**

```
Start
    Prompt user for response
    Get response

    CASE OF (response) {
        1: x = x + y
        2: x = x – y
        3: x = x * y
        4: x = x / y
        default: Display "No output."
    ENDCASE
End
```

5. Convert the following pseudocode into a flowchart. **[9 Marks]**

```
Start
        PROMPT user for credit score
        GET creditScore

        IF (creditScore > 700) THEN
            interestRate = creditScore + (creditScore * 0.15)
        ELSE IF (creditScore >= 600) THEN
            interestRate = creditScore + (creditScore * 0.20)
        ELSE
            interestRate = creditScore + (creditScore * 0.25)
          ENDIF
        ENDIF
        DISPLAY interestRate
End
```

6. Write a pseudocode to assist a librarian in categorizing books based on their publication years. The program should prompt the librarian for the publication year of a book. Then, it should categorize the book into one of the following age categories: **"Classic"**, **"Modern"**, or **"Contemporary"**. Use the variable **currentYear** to represent the current year when the librarian is categorizing the book. **[8 Marks]**

The criteria for categorisation are as follows:

Classic: Books published more than 50 years ago.
Modern: Books published between 20 and 50 years ago (20 and 50 years inclusive).
Contemporary: Books published within the last 19 years.

7. Write a pseudocode that will display all even numbers from 250 to 450. Use a loop (repetition) for your solution. **[6 Marks]**

8. Create a function named **addNumbers()**, that will display the sum of 10 numbers received as input from the user. Your solution must include a function call. **[9 Marks]**

********** End of the Paper **********