Chapter 5

BASICS OF PSEUDOCODE

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Introduction

Pseudocode is a detailed description of an algorithm without using syntax of a specific programming language.

A pseudocode has the following properties:

- It can use general programming code statements
- It cannot be executed like a program code
- It explains an algorithm in a language close to a general program
- It does not have fixed code, but should be logical and understandable

Keywords

Keywords are special words that are used for specific tasks. A keyword cannot be used as a variable name. Given below are some common keywords and their use.

Note: *that there are many more keywords, and you will learn them in higher classes.*

Keyword	LET / ASSIGN
Use	To assign value to a variable
Example	LET P := 6 ASSIGN 6 TO P

Keyword PRINT / SHOW / DISPLAY / OUTPUT
Use To show a value/variable on the output device
Example PRINT "The weight is " ; w ; " kg"
[All these keywords have same meaning]

Keyword INPUT / GET / READ
Use To put a value in a variable
Example INPUT "What is the weight " ; w
[All these keywords have same meaning]

Keyword BEGIN ... END
Use To mark the beginning and end of a process
Example
```
BEGIN
    LET P := 6
    PRINT P
END
```

Keyword IF ...THEN .. ELSE .. ENDIF
Use To perform task upon condition
Example
```
IF P < 10 THEN
    PRINT "BLACK"
ELSE
    PRINT "WHITE"
ENDIF
```

Keyword REPEAT .. UNTIL
Use To repeat a task until the condition is true
Example
```
LET Q := 6
REPEAT
    PRINT Q
    Q = Q + 1
UNTIL (Q = 10 )
```

Keyword DO .. WHILE
Use To repeat a task as long as the condition is true
Example
```
LET Q := 6
DO
    PRINT Q
    Q = Q + 1
WHILE (Q < 10 )
```

Note: *REPEAT ..UNTIL & DO..WHILE are similar*

Pseudocode Operators

Arithmetic Operators

These are common operators used for calculations.

- + for addition
- - for subtraction
- * for multiplication
- / for division
- ^ for exponentiation

Assignment Operators

These are used to assign a value in a variable.
The direction of assignment is from right to left.

← :=

Example: $c \leftarrow 26$

$d := 62$

Comparison Operators

These are used for comparisons.

They give a result of either true or false

= for comparison of equality

≠ for comparison of inequality

< for comparison of less than or not

> for comparison of greater than or not

≤ for comparison of less than or equal to or not

≥ for comparison of greater than or equal to or not

EXAMPLES

1. Addition of two variables

```
BEGIN
    INPUT " Enter two numbers " , A, B
    LET R ← A + B
    DISPLAY "Result =" , R
END
```

2. Print the area of a square field

```
BEGIN
    INPUT " Enter the length of side " , L
    LET A := L ^ 2
```

```
        DISPLAY "Area  =" , A
    END
```

3. Use of Condition IF .. ELSE IF .. ELSE

```
    BEGIN
        INPUT "How is your mood" , M
        IF M = "Good" THEN
            SHOW "Smile"
        ELSE IF M = "Bad" THEN
            SHOW "Frown"
        ELSE
            SHOW "Neutral"
        ENDIF
    END
```

4. Use of REPEAT ... UNTIL

```
    BEGIN
        REPEAT
            PRINT "Write the answer of the question"
        UNTIL All the Questions are Answered
    END
```

5. Use of DO ... WHILE

```
    BEGIN
        DO
            PRINT "Have Fun"
        WHILE Holidays are not over
    END
```

6. Use of Condition IF .. ELSE IF .. ELSE

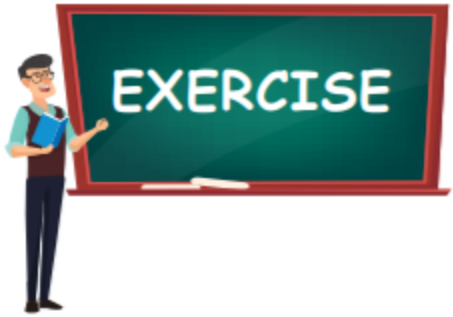
```
BEGIN
    INPUT "Enter the Age " , G
    IF G >= 60 THEN
        DISPLAY  "Senior Citizen"
    ELSE
        DISPLAY "Not Senior Citizen"
    ENDIF
END
```

7. Use of REPEAT ... UNTIL

```
BEGIN
    LET N = 1
    REPEAT
        PRINT " Roll Number " , N
        LET N = N + 1
    UNTIL N = 10
END
```

8. Use of DO ... WHILE

```
BEGIN
    LET M = 10
    DO
        PRINT " Countdown " , M
        LET M = M - 1
    WHILE M >= 1
END
```



Q1. Answer the following

i. What is Pseudocode?

ii. Write any four properties of Pseudocode.

iii. Name the Arithmetic operators used in Pseudocode. Give example of each.

iv. What is the difference between = and := symbols?

v. Name the Comparison operators used in Pseudocode. Give example of each.

Q2. Write a Pseudocode that performs the following

i. Input the price of a printer. Give a discount of 50%. Calculate and print the final price.

ii. Show the product of three variables.

iii. Calculate and print the average of two numbers.

iv. Give an example of Repeat .. Until

v. Give and example of Do.. While