

DRAW FLOWCHART AND WRITE ALGORITHM FOR THE FOLLOWING PROBLEM

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TOOLS USED

- ❖ Used Diagram.net to design the flowchart
- ❖ Easy User Interface to draw the flowchart

Exp No : 1 - A
Date : 29-11-2022

STUDENT GRADE ANALYSIS

AIM :

To draw flowchart and write algorithm for the following problem.

ALGORITHM :

STEP 1 : Start

STEP 2 : Get the number of students (N)

STEP 3 : Assign $i = 0$

STEP 4 : Check for the condition $i < N$

4.1 : If true, Get Name, Roll Number and Marks m_1, m_2, m_3, m_4, m_5

4.2 : Calculate $Total = m_1 + m_2 + m_3 + m_4 + m_5$ and $Average = Total / 5$

4.3 : Display Name and Roll Number

4.4 : Check for condition $avg \geq 30$ and $avg < 50$

4.4.1 : If true, Display the message "Your grade is C" and increase i value by 1

4.5 : Check for condition $avg > 50$ and $avg < 80$

4.5.1 : If true, Display the message "Your grade is B" and increase i value by 1

4.6 : Check or the condition $avg > 80$ and $avg \leq 100$

4.6.1 : If true, Display the message "Your grade is A" and increase i value by 1

4.7 : Check for the condition $avg < 30$

4.7.1 : If true, Display the message "Your grade is D"

STEP 5 : If false, go to step 6

STEP 6 : Stop

PSEUDO CODE:

START

GET n

INITIALIZE i=0

IF i > n THEN

 GET name, Roll no, m1, m2, m3, m4, m5

 CALCULATE Total = m1 + m2 + m3 + m4 + m5

 Average = Total /3

 PRINT name , Roll no

 IF avg >= 30 and avg < 50 THEN

 PRINT Your grade is C

 ELIF avg > 50 and avg < 80

 PRINT Your grade is B

 ELIF avg > 80 and avg ≤ 100

 PRINT Your grade is A

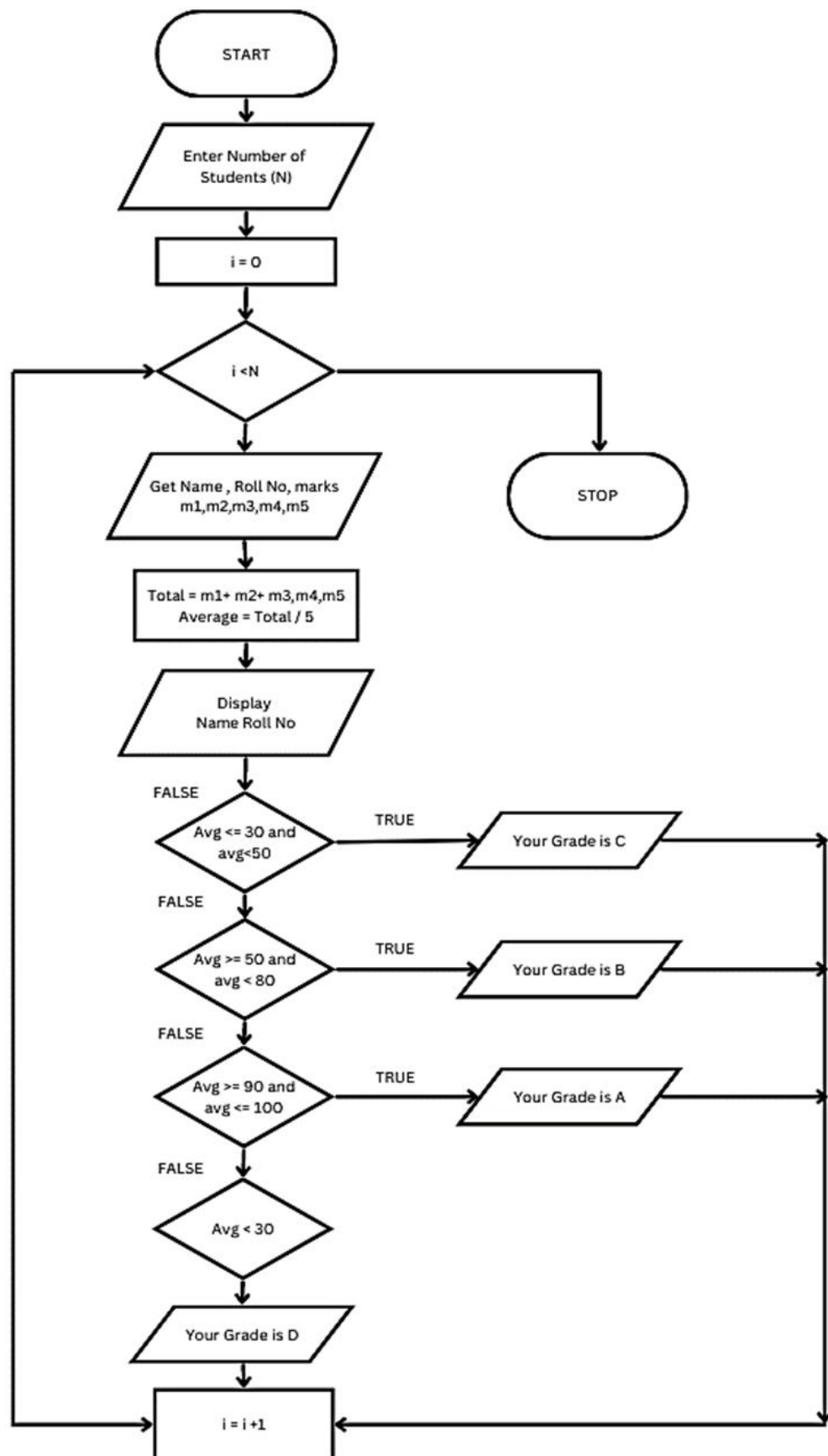
 ELIF avg < 30

 PRINT Your grade is D

 ENDIF

STOP

FLOWCHART :



RESULT :

Thus, the algorithm and flowchart are written for the given problem.

Exp No : 1 - B

WEIGHT OF A STEEL ROD

Date : 29-11-2022

AIM :

To draw flowchart and write algorithm for the following problem.

ALGORITHM :

STEP 1 : Start

STEP 2 : Get the number of iron rod required (N)

STEP 3 : Initialize i = 0 and Total = 0

STEP 4 : Check if the value of i is less than n

4.1 : If true, get the diameter of the rod (D)

4.1.1 : Calculate the unit weight using formula $D^2 / 162 = W$

4.1.2 : Get the number of rod with diameter D

4.1.3 : Calculate the weight of the rod using formula Number of Rod * D * Unit Weight

4.1.4 : Add the weight to Total

4.1.5 : Increment the value of i by 1

4.2 : If condition is false, Display total as total weight of the rod

STEP 5 : Stop

PSEUDO CODE:

START

GET n

INITIATE i = 0, Weight = 0

IF i = n THEN

 GET D

 CALCULATE $W = D * 2 / 162$

 CALCULATE $TW = TW + W$ i = i+1

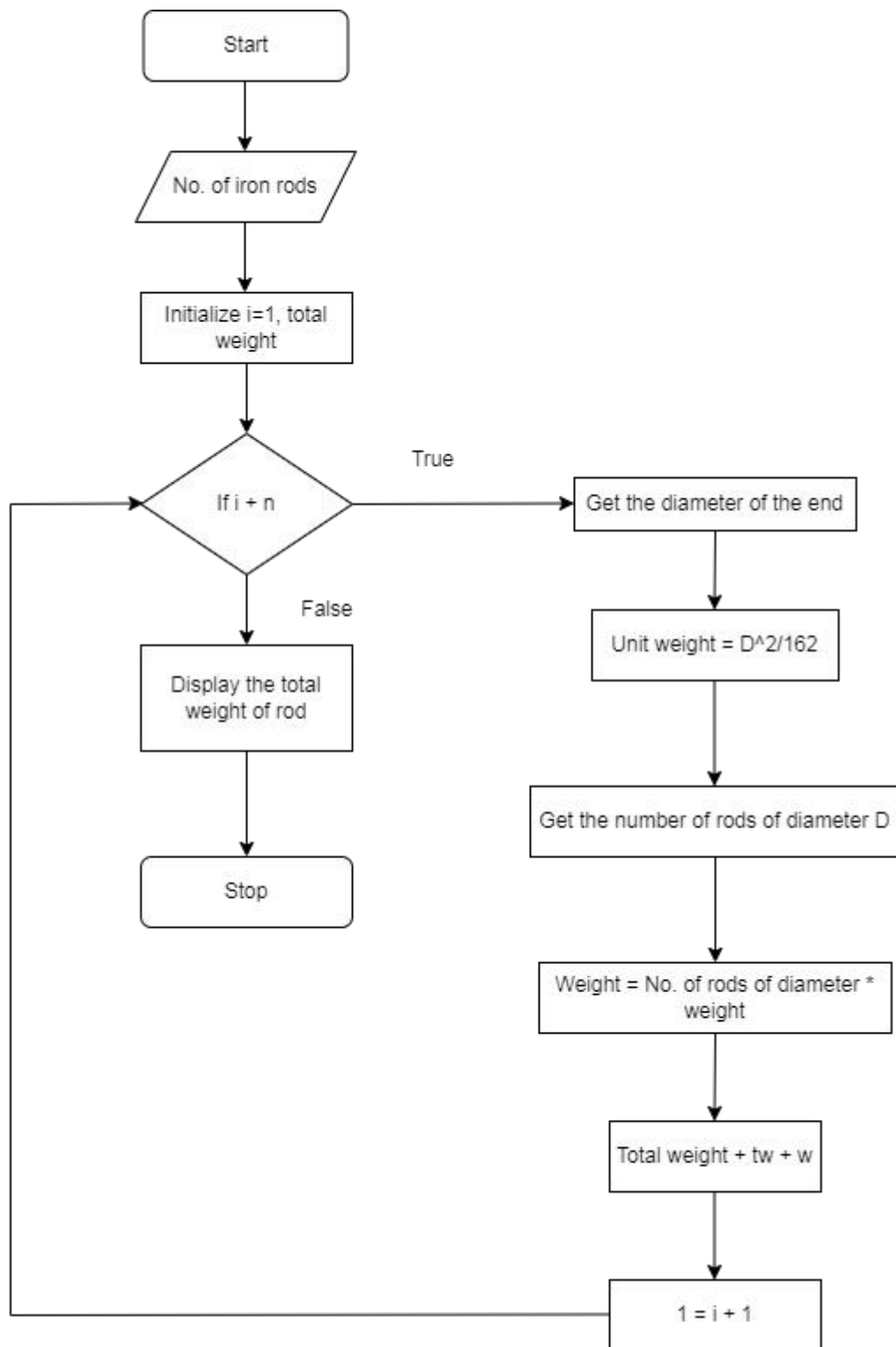
ELSE

PRINT TW

END IF

STOP

FLOWCHART :



RESULT :

Thus, the algorithm and flowchart are written for the given problem.

Exp No : 1 - C

ELECTRICITY BILL

Date : 29-11-2022

AIM :

To draw flowchart and write algorithm for the given problem.

ALGORITHM :

STEP 1 : Start

STEP 2 : Enter Current Unit (CU)

STEP 3 : Enter Old Unit (OU)

STEP 4 : Calculate $N = CU - OU$

STEP 5 : Check the condition $N \leq 100$

5.1 : If true, Calculate EC using formula $FC = 0, DC = 0, EC = 0$

5.2 : Calculate Total charges = $FC + DC + EC$

5.3 : Display amount needed to pay and go to Step 9

STEP 6 : Check for condition $N \leq 200$

6.1 : If true, Calculate EC using formula $FC = 20, DC = 18, EC = (N-100) * 1.5$

6.2 : Calculate the Total charges = $FC + DC + EC$

6.3 : Display amount needed to pay and go to Step 9

STEP 7 : Check for condition $N \leq 500$

7.1 : If true, Calculate EC using formula $FC = 73, DC = 48, EC = (N - 100) * 3.5$

7.2 : Calculate the Total charges = $FC + DC + EC$

7.3 : Display amount needed to pay and go to Step 9

STEP 8 : Check for condition $N > 500$

8.1 : If true, Calculate EC using formula $FC = 75, DC = 100, EC = (400*4.5) + (N - 500) * 6$

8.2 : Calculate Total charges = $FC + DC + EC$

8.3 : Display amount needed to pay and go to Step 9

STEP 9 : Stop

PSEUDO CODE:

START

GET CU

GET OU

CALCULATE $N = CU - OU$

IF $N \leq 100$ THEN

$FC = 0, DC = 0, EC = 0$

 CALCULATE EC

ELIF $N \leq 200$ THEN

$FC = 0, DC = 0, EC = 0$

 CALCULATE $EC = (N - 100) * 1.5$

ELIF $N \leq 500$ THEN

$FC = 0, DC = 0, EC = 0$

 CALCULATE $EC = (N - 100) * 3.5$

ELIF $N > 500$ THEN

$FC = 0, DC = 0, EC = 0$

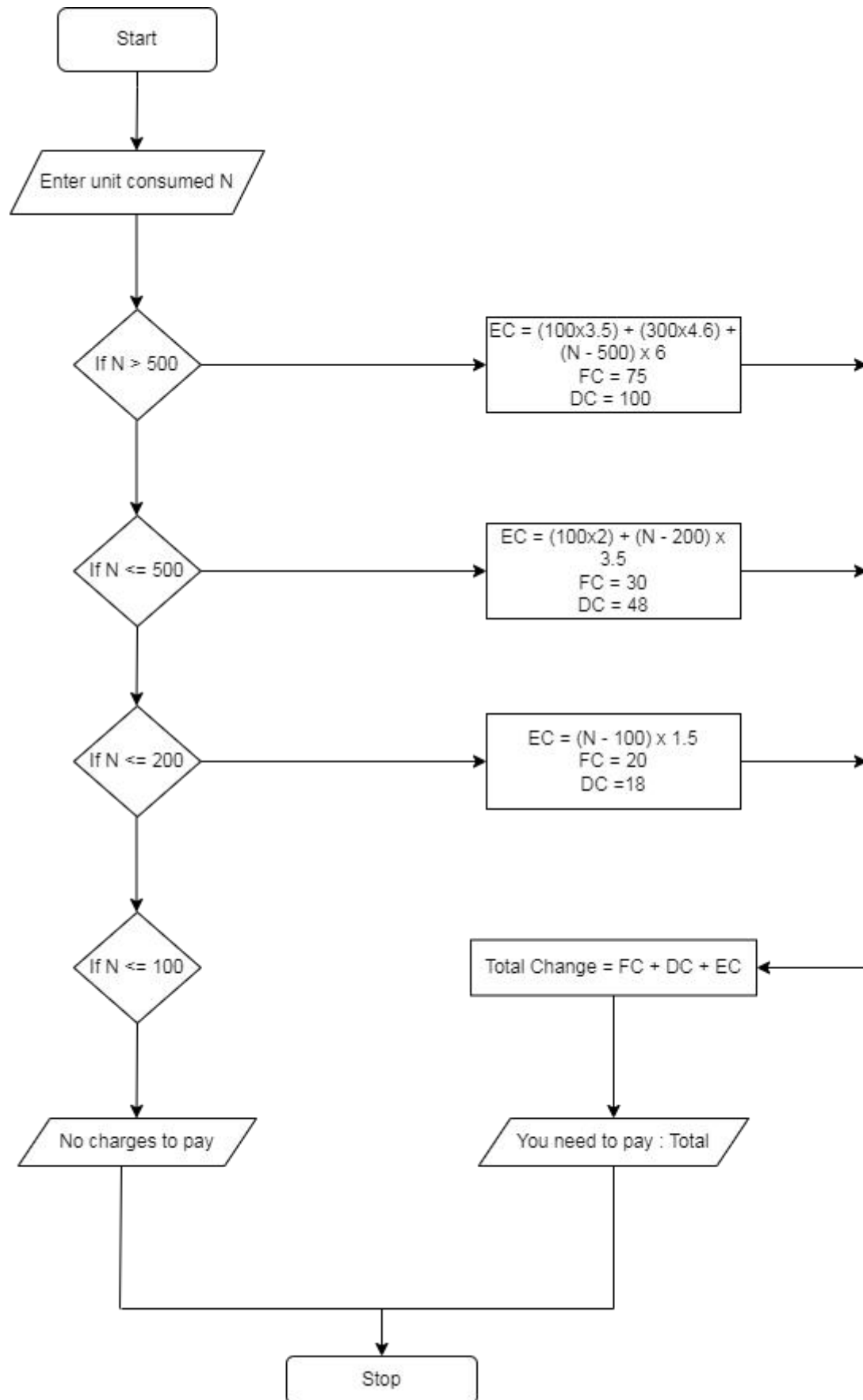
 CALCULATE $EC = (400 * 4.5) + (N - 500) * 6$

END IF

PRINT Total Charges = $FC + DC + EC$

STOP

FLOWCHART :



RESULT :

Thus, the algorithm and flowchart are written for the given problem.

Exp No : 1 - D

RETAIL SHOP BILLING

Date : 29-11-2022

AIM :

To draw flowchart and write algorithm for the given problem.

ALGORITHM :

STEP 1 : Start

STEP 2 : Get the Bill number

STEP 3 : Get Customer Name and Phone Number

STEP 4 : Get the value of total number of items purchased

STEP 5 : Initialize the values for $i = 0$, $Total = 0$ and $Subtotal = 0$

STEP 6 : Check if condition $i \leq n$

6.1 : If true, get Item name, Price, Quantity and Discount

6.2 : Calculate the $Subtotal = Quantity * Price - Discount$

6.3 : Calculate the $Total = Total + Subtotal$

6.4 : Increment the value i and go to Step 6

STEP 7 : If false, get the GST value

STEP 8 : Calculate $Total\ Bill\ Amount = Total + GST / 100$

STEP 9 : Display the Total Bill Amount

STEP 10 : Stop

PSEUDO CODE:

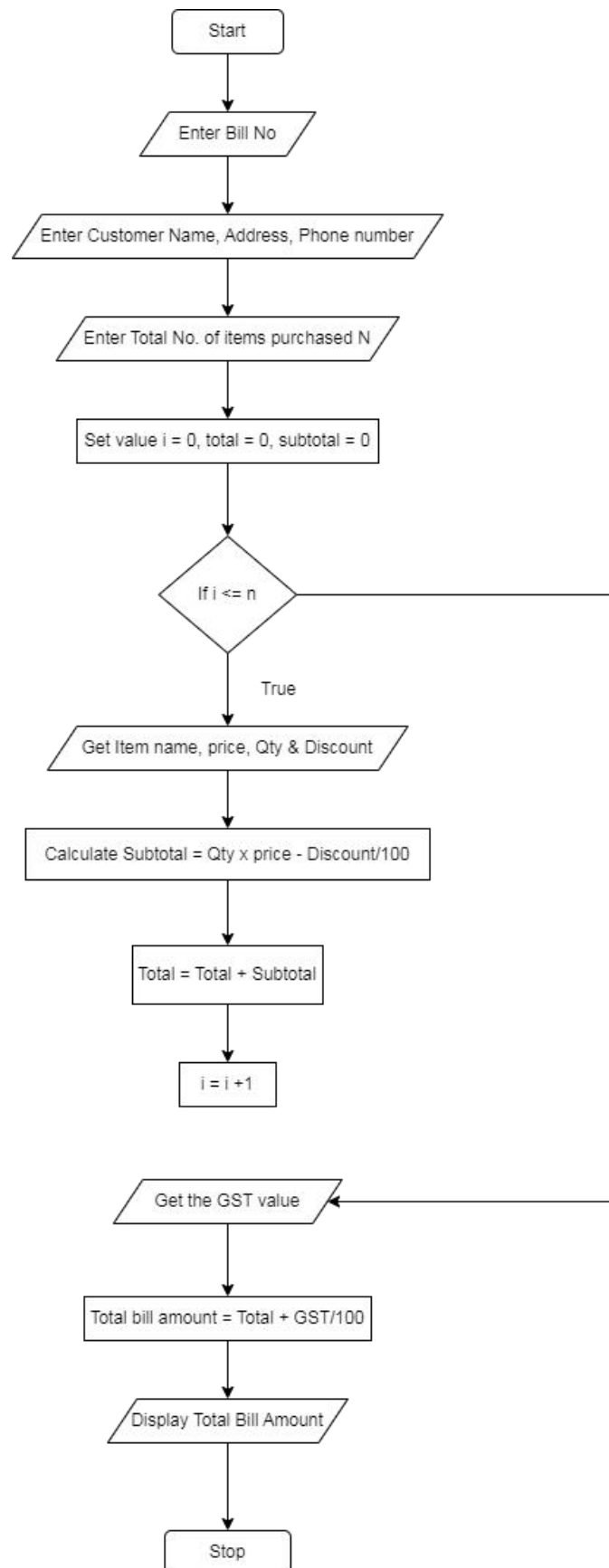
```

START
GET Bill Number
GET Customer name , number
INITIALIZE I = 0, Total = 0, Net Amount = 0, Gross = 0

IF I <= n
    GET Item Name, Price, Count, Discount
    CALCULATE The Gross = Price * Count
    CALCULATE The Disc = Gross * Discount %
    CALCULATE The Subtotal = Gross - Disc
    CALCULATE the Total = Total + Net Amount
    i = i + 1
ELSE
    GET GST
    CALCULATE GST AMOUNT = (GROSS * GST%) / 100.
    CALCULATE the BILL Price = Total + GST Amount
PRINT Bill Price
ENDIF
STOP

```

FLOWCHART :



RESULT :

Thus, the algorithm and flowchart are written for the given problem.

Exp No : 1 - E

WEIGHT OF A MOTOR BIKE

Date : 29-11-2022

AIM :

To draw flowchart and write algorithm for the given problem.

ALGORITHM :

STEP 1 : Start

STEP 2 : Get gross vehicle weight Rating GVWR

STEP 3 : Get Dry weight (DW)

STEP 4 : Get Fuel weight (FW)

STEP 5 : Get Raider weight (RW)

STEP 6 : Get Passenger weight (PW)

STEP 7 : Calculate Total weight = $DW + FW + RW + PW$

STEP 8 : Get Load Value

STEP 9 : Calculate safe weight = $GVWR - \text{Load weight}$.

STEP 10 : Check the condition safe weight ≥ 0

10.1 : If true, print the message "You have a safe load and you can drive" go to Step 11

10.2 : If false, print the message "Reduce the load and then drive"

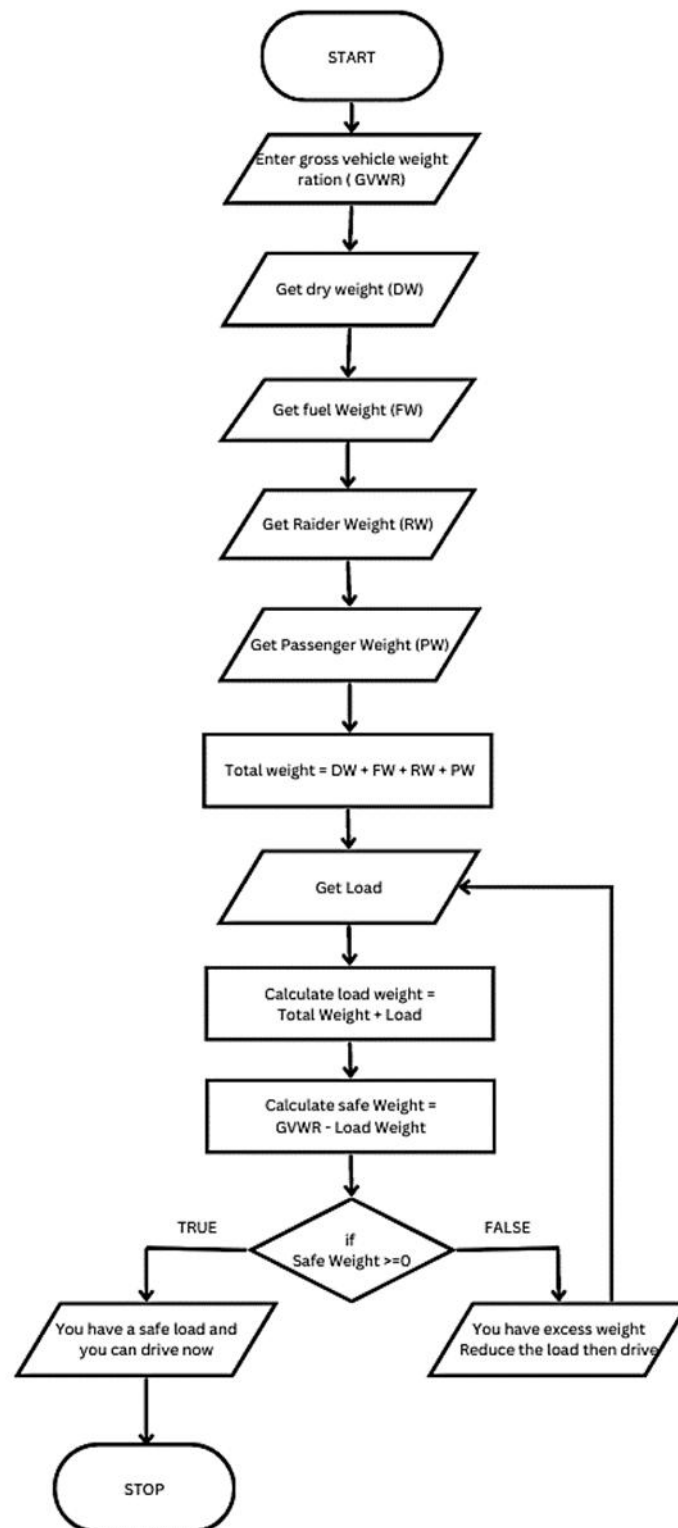
10.2.1 : Go to Step 8

STEP 11 : Stop

PSEUDO CODE:

```
START
GET GVWR
GET DW
GET FW
GET RW
GET PW
CALCULATE Total Weight = DW + FW+ RW + PW
GET Load
CALCULATE Load Weight = Total Weight + Load
CALCULATE Safe Weight = GVWR - Load Weight
IF Safe Weight >= 0 Then
PRINT You have a safe load and you can drive
ELSE
PRINT You have excess weight, Reduce the load and then drive
ENDIF
STOP
```


FLOWCHART :



RESULT :

Thus, the algorithm and flowchart are written for the given problem.

Exp No : 1 - F

ELECTRIC CURRENT IN 3 PHASE AC CIRCUIT

Date : 29-11-2022

AIM :

To draw flowchart and write algorithm for the given problem.

ALGORITHM :

STEP 1: Start

STEP 2: Get value of Power Factor (PF)

STEP 3: Get value of Current (I)

STEP 4: Get value of voltage (V)

STEP 5: Calculate P using the formula $P = \sqrt{3} * PF * I * V$

STEP 6: Display the value of P

STEP 7: Stop

PSEUDO CODE:

START

GET P

GET I

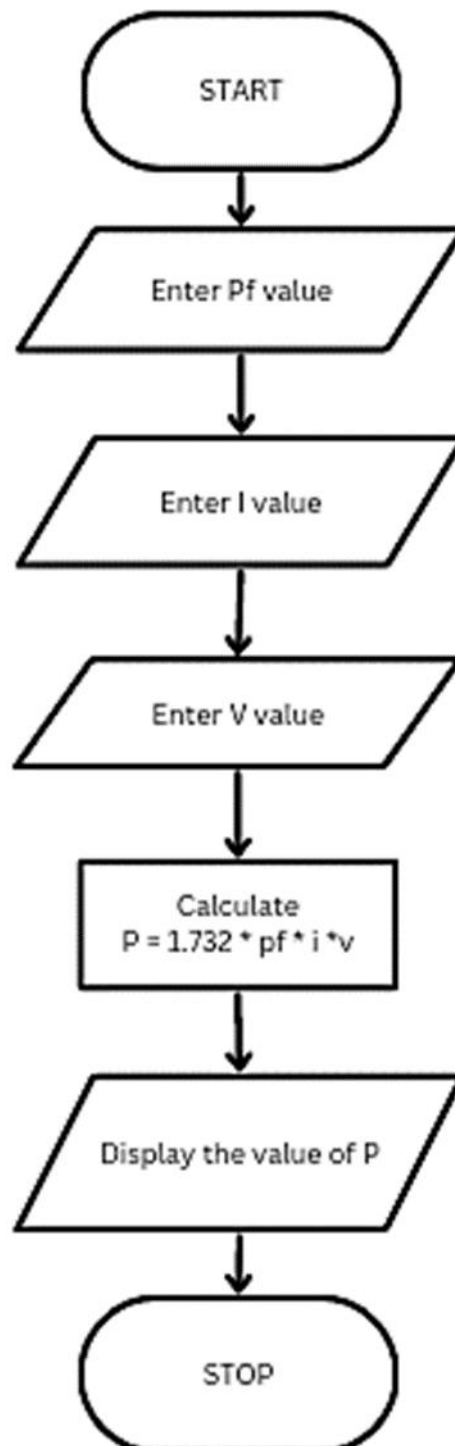
GET V

CALCULATE $P = 1.732 * I * V$

PRINT P

STOP

FLOWCHART :



RESULT :

Thus, the algorithm and flowchart are written for the given problem.

Exp No : 1 - G

SINE SERIES

Date : 29-11-2022

AIM :

To draw flowchart and write algorithm for the given problem.

ALGORITHM :

STEP 1 : Start

STEP 2 : Get the value of x

STEP 3 : Initialize the values of $1 = 1$, $\text{sine} = 0$ and import math

STEP 4 : Get the value of N

STEP 5 : Check whether value of i less than N

5.1 : If condition is true, convert a to radian and adding it to y

5.1.1 : Let value of s be $(-1)^i$ to the power I

5.1.2 : Now calculate the series using the formula

$$\text{Sine} = \text{sine} + (y * * 2 * i + 1) / \text{math factorial } (2i + 1) + S$$

5.1.3 : Increment value of i by 1

5.2 : If condition is false display sine

STEP 6 : Stop

PSEUDO CODE:

START

GET x

INITIALIZE i=1,sine=0

IMPORT math

GET n

IF i < n

 CALCULATE $y = y + x (3.416 \% 100)$

 ASSIGN $s = (-1) ** i$

 CALCULATE $\text{Sine} = \text{sine} + ((y**2* i + 1))/ \text{math factorial } (2*i*1) \text{ S.}$

 i=i+1

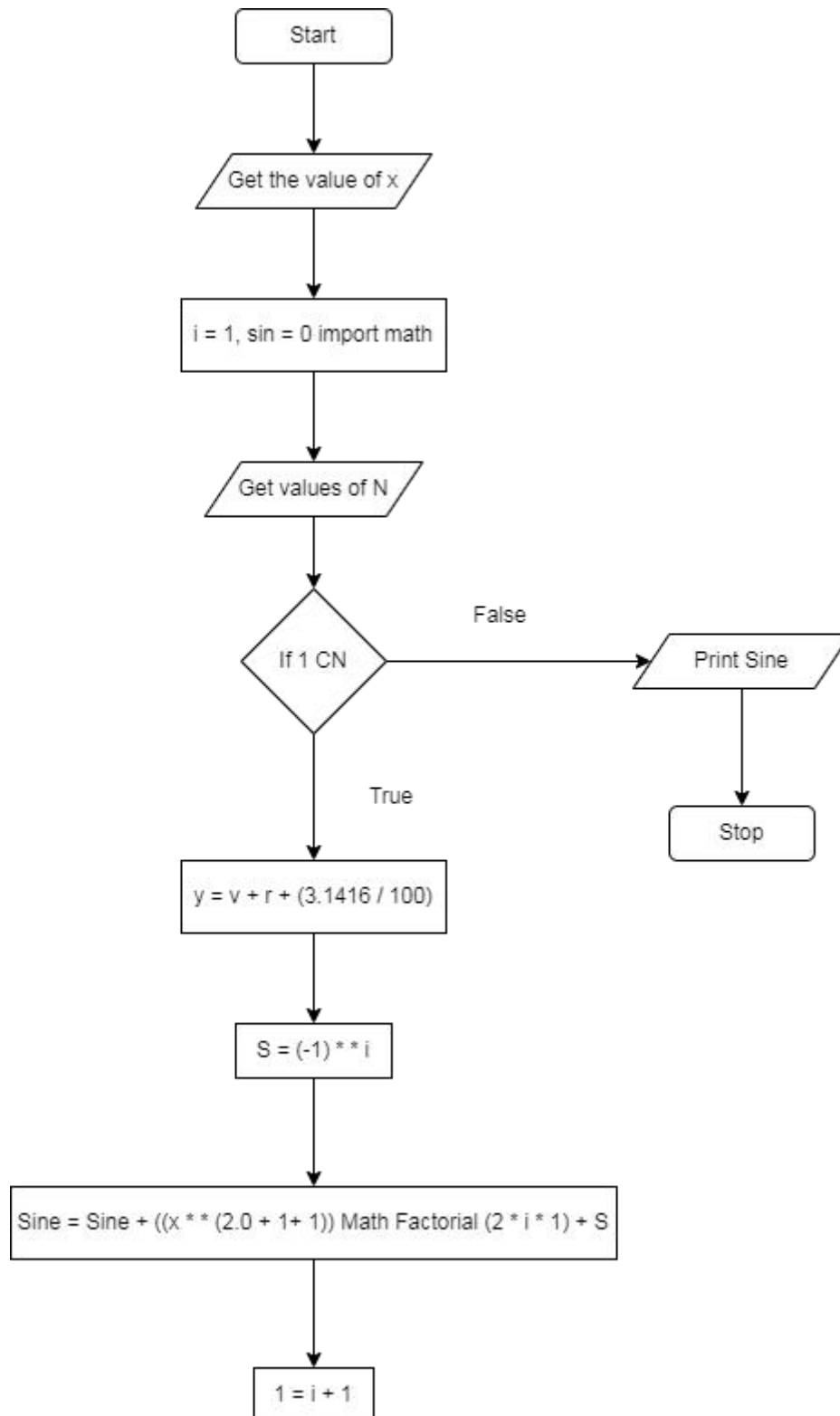
ELSE

PRINT Sine

ENDIF

STOP

FLOWCHART :

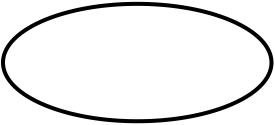


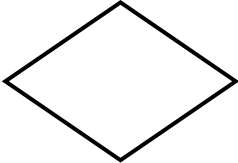
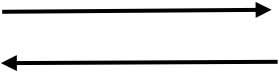
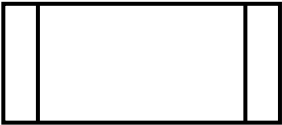


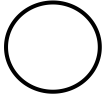
RESULT :

Thus, the algorithm and flowchart are written for the given problem.

FLOWCHART:

- ❖ Flowchart A graphical representation of the logic for the problem solving
- ❖ The purpose of the flowchart is making the logic of the program in a visual representation
- ❖ Flowcharts is a diagram made up of boxes, diamonds and other shapes, connected by arrows
- ❖ Each shape represents a step-in process and arrows show the order in which they occur

	OVAL - TERMINAL SYMBOL
	Parallelogram - Input/ Output symbol
	Rectangle - Process symbol
	Diamond- Decision symbol
	Arrow lines - Flow lines
	To represent a function

	Circle – Connector
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TOOLS USED TO DRAW FLOWCHART

1. Smart Draw
2. Canva
3. Diagrams.net
4. Lucidchart
5. Visme
6. Zen Flow Chart
7. Visual Paradiagram
8. Creatly
9. Google Draw