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Roll no :22CSEA14

IDENTIFICATION AND SOLVING OFSIMPLE REAL LIFE PROBLEMS

EX 1: Draw flowchart and write algorithm, pseudo code

1. **CALCULATING ELECTRICITY BILL**

AIM

To draw flowchart and write algorithm, pseudo code for calculating electricity bill.

ALGORITHM:

STEP 1: start

STEP 2: Enter this month unit and previous month unit.

STEP 3: unit =this month unit – previous month unit.

STEP 4: check unit <= 100 , if true ,no amount pay else move to next step.

STEP 5: check unit >100 && unit<=200 if true print the process of condition.

STEP 6: check unit >200 && unit<=400 if true print the process of condition.

STEP 7: check unit>400 if true print the process.

STEP 8: total amount = amount +FTC+DC

STEP 9: print total amount

STEP 10: stop

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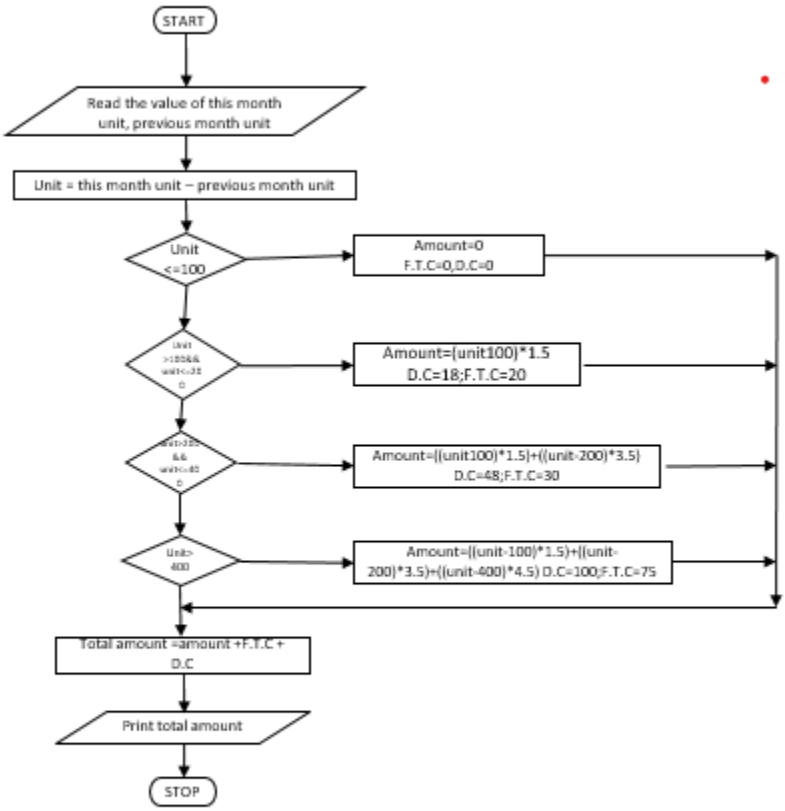
FLOW CHART:



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PSEUDO CODE:

```
BEGIN
GET values of this month unit, previous month unit
COMPUTE unit= this month unit-previous month unit
IF unit<=100
    No amount to pay
ELSE
    Move to next step
ENDIF

IF unit>100 && unit<=200

    PRINT the process of condition

ELSE

    Move to next step

ENDIF

IF unit>200 && unit<=400

    PRINT the process condition

ELSE
```

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Move to next step

ENDIF

IF unit>400

PRINT the process condition

ELSE

Move to next step

ENDIF

COMPUTE total amount = amount + FTC + DC

PRINT total amount

END

RESULT:

Thus the algorithm, pseudo code and flowchart is written for the given problem.

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2. CALCULATING SINE SERIES:

AIM

To draw flowchart and write algorithm, pseudo code for calculating sine series.

ALGORITHM:

STEP1: Start

STEP2: Read the number of items

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STEP3: Initialize i=1, series=x

STEP4: if i<=n, sum = ((-1) **1)*(***(2i+1))/(2i+1)!

4.1: series=series + sum

4.2: increment i value by i=i+1 goto step 4

STEP5: if condition is false

STEP6: print series

STEP7: stop

FLOWCHART:

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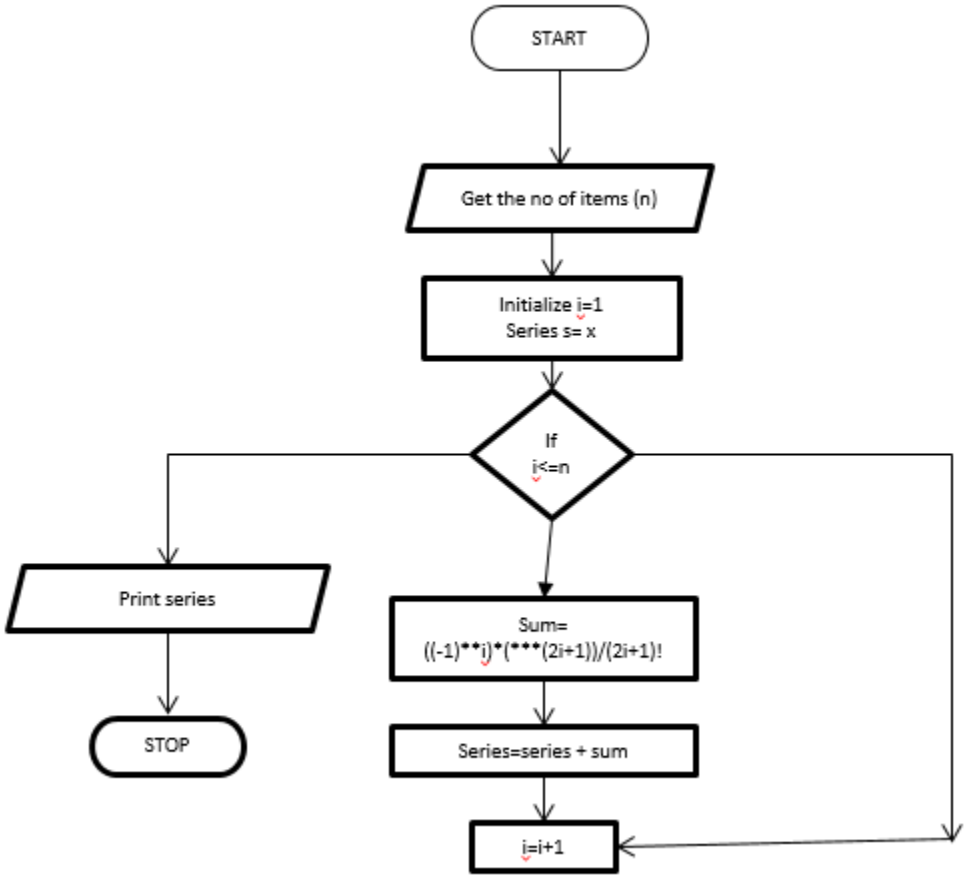

PSEUDO CODE:

START

GET value of x,n

x must be in degree

INITIALIZE i=1,s=-1**I,sine=0

Import math

IF i<=n THEN

Convert x to radian using formula

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CALCULATE

Sine=sine+y**(2*i=1).factorial(2*i+1)*s

i=i+1

ELSE

Display sine

STOP

RESULT:

Thus the algorithm, pseudo code and flowchart is written for the given problem.

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3.ELECTRICAL CURRENT IN 3 PHASE AC CIRCUIT:

AIM

To draw flowchart and write algorithm, pseudo code for calculating electric current in 3 phase ac circuit

ALGORITHM

STEP1: start

STEP2: read the value kw, v

STEP3: to find I calculate (1000*kw)/(1.732*v)

STEP4: display the value I

STEP5: stop

FLOWCHART:

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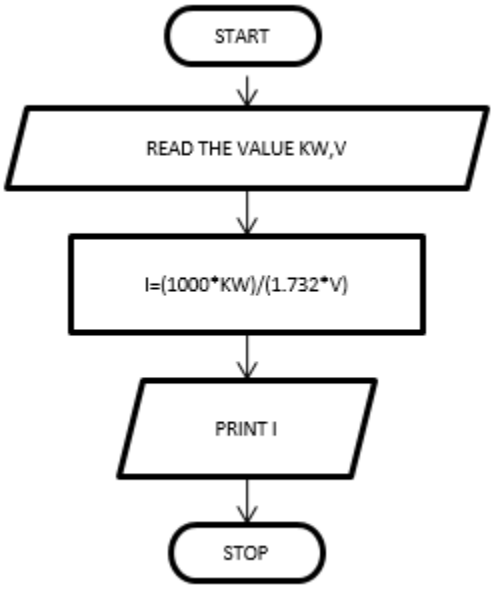

PSEUDO CODE:

START

READ the value of power factor

READ the value of I

READ the value of v

CALCULATE p = $\sqrt{3}$ *pf*I*V

DISPLAY the result of p

STOP

RESULT:

Thus the algorithm, pseudo code and flowchart is written for the given problem.

4.WEIGHT OF STEEL ROD

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AIM

To draw flowchart and write algorithm, pseudo code for calculating weight of steel rod.

ALGORITHM

STEP1: start

STEP2: enter the number of rods (N.R)

STEP3: if N.R==0 yes: 3.1, 3.2 no: go to step 4

3.1: total weight is zero

3.2: go to step 6

STEP4: initialize total weight is 0, i=1

STEP5: if N.R >=i, yes: move to 5.1, no: go to step 6

5.1: read the value D, L

5.2: w= ((D*D)*L)/162

5.3: total weight = total weight + w

5.4: increment i , i++

STEP6: print total weight

STEP7: stop

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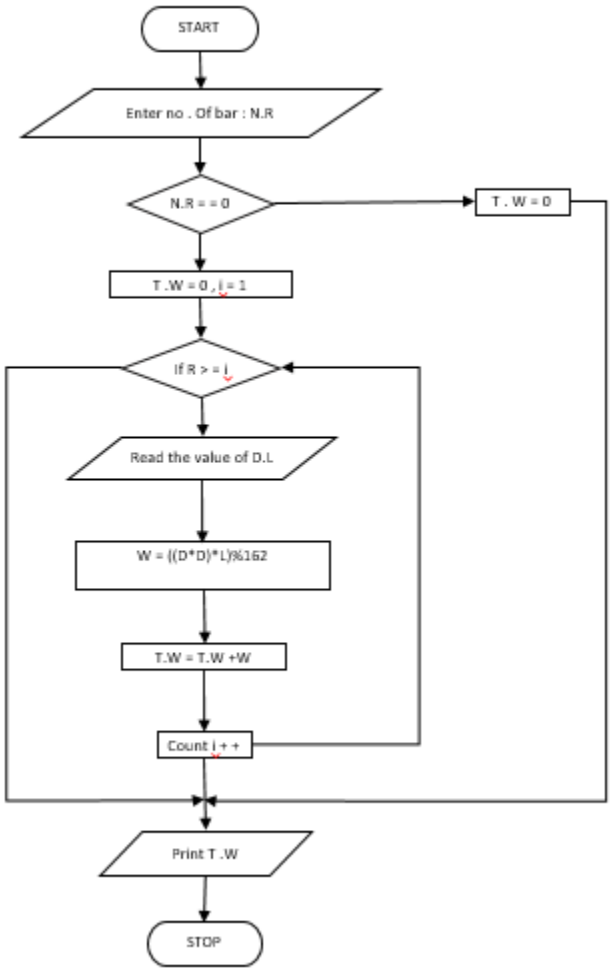
FLOWCHART:



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PSEUDO CODE:

START

GET number of iron rods as n

INITIALIZE I=0 total=0

If i<n THEN

Get diameter of rod D

CALCULATE unit weight using formula D**2/16

GET number of rods with D

CALCULATE weight of rod using formula, number of rods*D* unit weight add weight to total

i=i+1

ELSE

Display total weight of rod

STOP

RESULT:

Thus the algorithm, pseudo code and flowchart is written for the given problem.

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5.RETAIL SHOP BILLING

AIM

To draw flowchart and write algorithm, pseudo code for calculating retail shop billing.

ALGORITHM:

STEP1: start

STEP2: read the bill number

STEP3: enter the customer name,address

STEP4: get the total number of item purchased

STEP5: if N==0, yes: 5.1,5.2 ; no: go to step 6

5.1: sum=0

5.2: go to step 8

STEP6: initialize i=1,sum=0

STEP7: if i<=N ; yes: move to further step; no: go to step 8

7.1: read the value of the product

7.2: sum =sum + v

7.3: increment of i, i++

STEP8: if sum>2000, yes:8.1, no: goto step 9

8.1: sum *0.20=DA(discount amount)

8.2: total amount= sum-DA

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8.3: print total amount and step 2 and step 3

STEP9: print sum

STEP10: stop

FLOWCHART:

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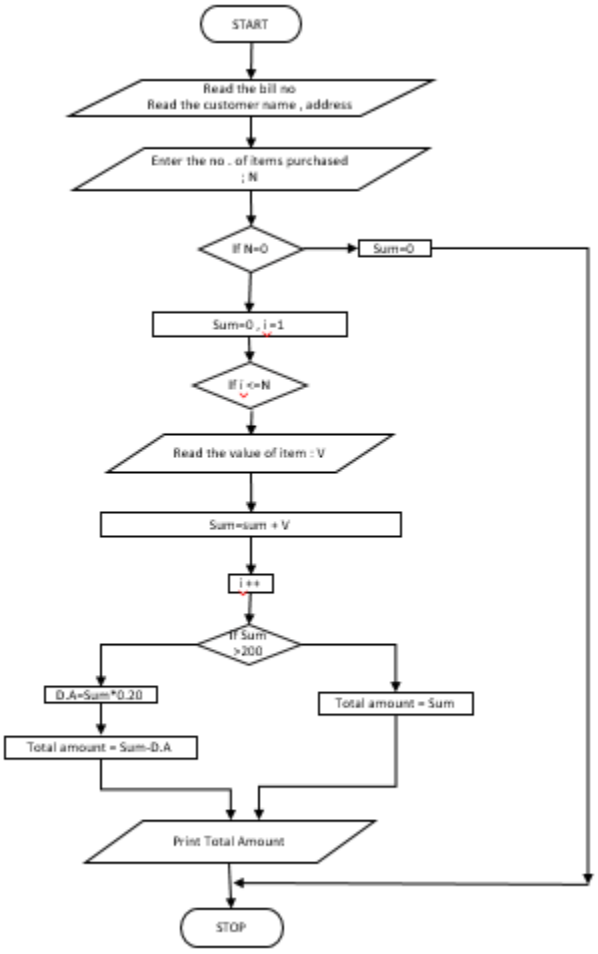

PSEUDO CODE:

START

GET the bill number

GET the customer name , address and phone number

GET the value of total number of items puechased (n)

INITIALIZE I = 0 , total = 0 and sub total = 0

If (i<n)

THEN

GET item name , price , quantity and discount

CALCULATE subtotal = quantity * price – discount

CALCULATE total = total + subtotal

INCREMENT the value of i

ELSE

GET the GST value

CALCULATE total = total + subtotal

INCREMENT the value of i

ELSE

GET the GST value

CALCULATE total bill amount = total + GST/100

DISPLAY the total bill amount

END IF

STOP

RESULT:

Thus the algorithm, pseudo code and flowchart is written for the given problem.

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6. WEIGHT OF MOTOR BIKE

AIM

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To draw flowchart and write algorithm, pseudo code for calculating weight of motor bike.

ALGORITHM:

STEP1: start

STEP2: get the type of motor cycle, M

STEP3: based on type M, choose weight as

3.1: if M=chopper, w=317 kg

3.2: if M=bobber, w=306kg

3.3: if M=cruiser, w=256kg

3.4: if M=scrambler, w=182kg

STEP4: else print as cannot find the weight

STEP5: print the weight

STEP6: stop

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FLOWCHART:

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PSEUDO CODE:

START

GET the type of motorcycle, M

IF M=chopper

    PRINT w=317

IF M=bobber

    PRINT w=306

IF M=cruiser

    PRINT w=256

IF M=scrambler

    PRINT w=182

ELSE

    PRINT cannot find the weight

ENDIF

PRINT the weight

STOP

RESULT:

Thus the algorithm, pseudo code and flowchart is written for the given problem.

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7. STUDENT GRADE ANALYSIS

AIM

To draw flowchart and write algorithm, pseudo code for calculating student grade analysis.

ALGORITHM:

STEP1: start

STEP2: read the number of students as N

STEP3: initialize i=1

STEP4: if i<=N yes: goto step5 no: go to step 15

STEP5: read the marks m1, m2, m3and name of students

STEP6: total=m1+m2+m3

STEP7: avg= total/3

STEP8: if avg>=90 && avg<=100 yes: 8.1,no: go to step 9

8.1: grade=A+

STEP9: if avg>=75 && avg<90 yes: 9.1, no: go to step 10

9.1: grade=A

STEP10: if avg>=50 && avg<75 yes: 10.1, no: go to step 11

10.1: grade=B

STEP11: if avg>=35 && avg<50 yes: 11.1, no: go to step 12

11.1: grade=C

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STEP12: if avg <35 go to 12.1 else go to step 13

12.1: grade=D

STEP13: increment i

STEP14: print the name and grade

STEP15: stop

FLOWCHART:

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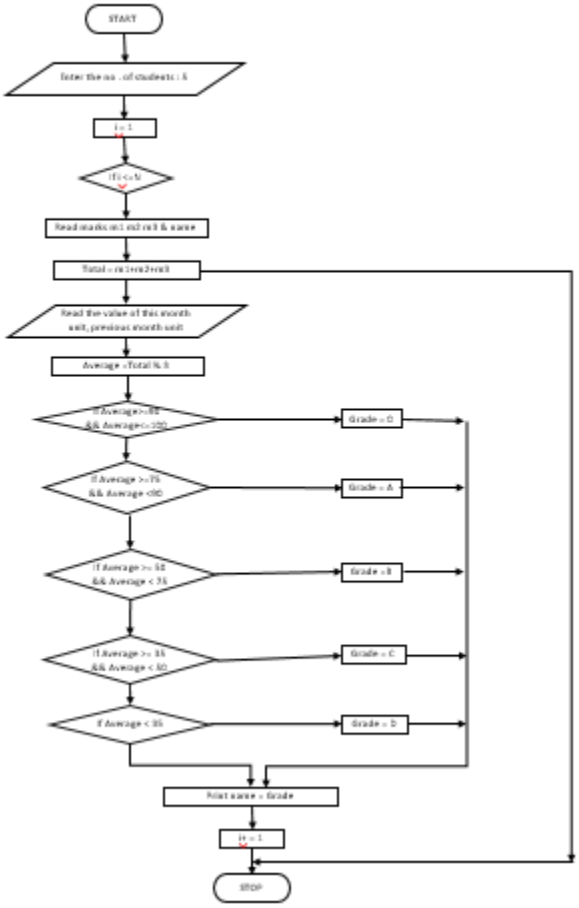

PSEUDO CODE:

START

READ number of students n

IF i< n THEN

GET student name , roll number m1,m2,m3

ELSE

BREAK

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CALCULATE percentage using formula,(m1+m2+m3)/3*100

IF 100>=percentage >90 THEN

PRINT name, roll number, ”o+” STOP

ELIF 90>=percentage>80 THEN

PRINT name ,roll number, ”o +” STOP

ELIF 80>=percentage>70 THEN

PRINT name, roll number , ”A” STOP

ELIF 70>=PERCENTAGE>70 then

Print NAME, ROLL NUMBER “B” STOP

ELIF

PRINT name, roll number “fail” STOP

I=I+1

STOP

RESULT:

Thus the algorithm, pseudo code and flowchart is written for the given problem.