#Roshan Chawan 22CV013

#To Calculate the length of transition curve

V= int(input("Enter the value of design speed: "))

R= int(input("Enter the value of Radius of curvature: "))

N= int(input("Enter the value of slope: "))

W= float(input("Enter the value of width of road including extra widening: "))

emax=float(input("'enter the value for plain terain:"))

ecal= (V\*V/(225\*R))

print("The value of Super elevation:",ecal)

if ecal<emax:

  print(ecal)

else:

  print(emax)

Ls=(emax\*N\*W/2)

print("The length of transition curve:", Ls)

Output:-

Enter the value of design speed: 65

Enter the value of Radius of curvature: 220

Enter the value of slope: 150

Enter the value of width of road including extra widening: 7.5

'enter the value for plain terain:0.07

The value of Super elevation: 0.08535353535353535

0.07

The length of transition curve: 39.37500000000001

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R = int(input(" Constant R: "))

C = int (input (" Constant C: "))

import numpy as geek # Added spaces for correct import

A = int(input ("Total Data Values for EWL Constant: "))

B = int(input ("Total Data Values for AADT: "))

EWL\_Constant = [] # Corrected variable name

AADT = []

for i in range (A): # Corrected loop variable

  print("Enter EWL Constant:")

  ewl\_val = float (input()) # Used a different variable for input

  EWL\_Constant.append(ewl\_val) # Appended the input value

for j in range (B): # Corrected loop variable

  print("Enter AADT: ")

  aadt\_val = float (input ())

  # Used a different variable for input

  AADT.append (aadt\_val)

  # Appended the input value

product = geek.dot (EWL\_Constant, AADT)

# Corrected variable name

# print(" Dot Product")

# This line was commented out

Total\_EWL = product

# Corrected variable name

print(" Total EWL :", Total\_EWL)

# Corrected variable name

print("EWL after 60 years :", Total\_EWL\*1.6)

# Corrected variable name

TI = 1.35 \* (((1.6 \* Total\_EWL) + (Total\_EWL / 2)) \*\* 0.11)

# Corrected variable names and calculation

print ("Traffic Index : ", TI)

# Output # Removed the use of "Output" as a variable name

Thickness = 0.166 \* TI \* (99 - R) / (C \*\* 0.2)

print ("Pavement Thickness: ", Thickness, "cm")

Output:-

Constant R: 48

Constant C: 16

Total Data Values for EWL Constant: 4

Total Data Values for AADT: 4

Enter EWL Constant:

330

Enter EWL Constant:

1070

Enter EWL Constant:

2460

Enter EWL Constant:

4620

Enter AADT:

3750

Enter AADT:

470

Enter AADT:

320

Enter AADT:

120

Total EWL : 3082000.0

EWL after 60 years : 4931200.0

Traffic Index : 7.577910657490486

Pavement Thickness: 36.847136933326986 cm

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P =float (input(" Load in kg: "))

p =float (input (" Tyre pressure kg/cm^2: "))

M = int (input ("Total Number of layers in a given Pavement : "))

pi = 3.14159

CBR = []

for i in range (1, M+1):

  print ("California Bearing Ratio of Material in %")

  CBR\_value = float (input ())

  CBR. append (CBR\_value)

  T = ((1.75\*P)/ (CBR\_value) -(P/(p\*pi)) ) \*\*0.5

  print ("Thickness Above this layer: ", T, "cm")

print ("Given that bitumen layer of 4 cm")

Output:-

Load in kg: 4085

Tyre pressure kg/cm^2: 7

Total Number of layers in a given Pavement : 3

California Bearing Ratio of Material in %

4.38

Thickness Above this layer: 38.031276487723645 cm

California Bearing Ratio of Material in %

6

Thickness Above this layer: 31.712799015896838 cm

California Bearing Ratio of Material in %

12

Thickness Above this layer: 20.247776538573337 cm

Given that bitumen layer of 4 cm