

**Question 1)**

```
[ ]: # Python3 program to convert a
      # decimal number to binary number


      # function to convert
      # decimal to binary
      def decToBinary(n):
          —————
          —————# array to store
          —————# binary number
          —————binaryNum = [0] * n;


          —————# counter for binary array
          —————i = 0;
          —————while (n > 0):

              —————# storing remainder
              —————# in binary array
              —————binaryNum[i] = n % 2;
              —————n = int(n / 2);
              —————i += 1;





          —————# printing binary array
          —————# in reverse order
          —————for j in range(i - 1, -1, -1):
              —————print(binaryNum[j], end = "");

      # Driver Code
      n = 17;
      decToBinary(n);
```

 Run

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Command Line Arguments

10001  
  
\*\* Process exited - Return Code: 0 \*\*  
Press Enter to exit terminal

**Question 2)**

main.py

Untitled4.py

+

```
1 print('Implementing a Simple Calculator Emulation')
2 print('The program exits when an incorrect expression is entered or "Quit"')
3 while True:
4     term_math = input('Enter a mathematical expression:')
5     if term_math.lower() == 'quit':
6         break
7     print('Result :',eval(term_math))
8
```

Ln: 7, Col: 38

Stop

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Command Line Arguments

Implementing a Simple Calculator Emulation

The program exits when an incorrect expression is entered or "Quit"

Enter a mathematical expression:

5+2

Result : 7

Enter a mathematical expression:

5\*2

Result : 10

### Question 3)

```
[ ]: #part(a)
a1 = 3
a2 = 4
a3 = 5
answer_a = (a1 + a2)*a3
print("Result of part (a) is: ", answer_a)
print("\n")
#part(b)
print("Choose the value of n")
n = float(input("The value of n taken is: "))
expression_b = (n*(n-1))/2
print("The result of part (b) is: ", expression_b)
print("\n")
#part(c)
print("Choose the value of r")
radius = float(input("The value of radius taken in: "))
expression_c = (4 * M.pi * (radius**2))
print("The result of part (c) is: ", expression_c)
#part(d)
r = float(input("Enter the value of r: "))
a = float(input("Enter the value of angle a: "))
b = float(input("Enter the value of angle b: "))
print("The result of part (d) is: ", end=" ")
print(((r*((M.cos(a))*2)) + (r*((M.sin(b))*2)))*0.5)
print("\n")

#part(e)
x1 = float(input("enter the value of x1:"))
x2 = float(input("enter the value of x2:"))
y1 = float(input("enter the value of y1:"))
y2 = float(input("enter the value of y2:"))
print("The result of part (e) is: ", end=" ")
if x2 == x1:
    print("NOT DEFINED")
```

Result of part (a) is: 35

Choose the value of n

The value of n taken is: 2

The result of part (b) is: 1.0

Choose the value of r

The value of radius taken in: 6

The result of part (c) is: 452.3893421169302

Enter the value of r: 4

Enter the value of angle a: 30

Enter the value of angle b: 60

The result of part (d) is: 0.6832364876940954

enter the value of x1:4

enter the value of x2:5


enter the value of y1:6


enter the value of y2:7

The result of part (e) is:  $(y2-y1)/(x2-x1)$  1.0






#### Question 4)

```
[ ]: # printing a number
#a)
for i in range(5):
    print(i, end=" ")
print()
#b)# printing a number
for i in range(3,10):
    print(i, end=" ")
print()
#c)
# printing a number
for i in range(4,13,3):
    print(i, end=" ")
print()
#d)
# printing a number
for i in range(15,5,-2):
    print(i, end=" ")
print()
#e)
# printing a number
for i in range(5,3,-1):
    print(i, end=" ")
print()
```

 Run

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Command Line Arguments



```
0 1 2 3 4
3 4 5 6 7 8 9
4 7 10
15 13 11 9 7
5 4
```

**Question 5)**



main.py



```
1 def main():
2     print("This program determines the molecular weight of a hydrocarbon.")
3     h = 1.0079
4     c = 12.011
5     o = 15.9994
6     hnum = eval(input("How many hydrogen atoms are there? "))
7     cnum = eval(input("How many carbon atoms are there? "))
8     onum = eval(input("How many oxygen atoms are there? "))
9     ans = (h*hnum) + (c*cnum) + (o*onum)
10    print("The molecular weight of the hydrocarbon is ", ans)
11 main()
```

Ln: 11, Col: 7



Run



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Command Line Arguments



This program determines the molecular weight of a hydrocarbon.



How many hydrogen atoms are there?

12



How many carbon atoms are there?

6



How many oxygen atoms are there?

6



The molecular weight of the hydrocarbon is 180.1572