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;
       = = int(n / 2);
       -×---×i += 1;
     ──## printing binary array
      *# in reverse order

wfor j in range(i - 1, -1, -1):
       * print(binaryNum[j], end = "");
     # Driver Code
     n = 17;
     decToBinary(n);
```

```
PRun Share 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:
        term_math = input('Enter a mathematical expression:')
 5 +
        if term_math.lower() == 'quit':
 6
            break
 7
        print('Result :',eval(term_math))
Ln: 7, Cal: 38
Stop
                   Command Line Arguments
          Share
<u>(lii</u>
   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
```

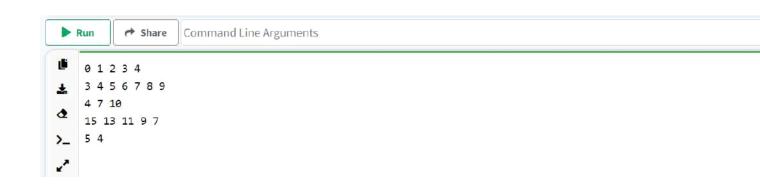
Question 3)

```
[ ]: #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()
```



Question 5)

```
main.py
1 - def main():
         print("This program determines the molecular weight of a hydrocarbon.")
  3
         h = 1.0079
         c = 12.011
  4
         0 = 15.9994
  5
  6
        hnum = eval(input("How many hydrogen atoms are there? "))
        cnum = eval(input("How many carbon atoms are there? "))
  7
         onum = eval(input("How many oxygen atoms are there? "))
         ans = (h*hnum) + (c*cnum) + (o*onum)
 9
         print("The molecular weight of the hydrocarbon is ", ans)
10
11 main()
Ln: 11, Col: 7
Run
          ♦ Share
                   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?
   How many oxygen atoms are there?
    The molecular weight of the hydrocarbon is 180.1572
```