Q2) a)
```
1    #series: 10,20,30....300
2    for i in range(1,31):
3        print i*10, #comma is necessary
```

b)
```
1    #series b: 105,98,91....7
2    for i in range(105,0,-7):
3        print i,
```

Q3) a)
```
1    #Q3 series a: 5,10,15...100
2    i=5
3    while i<101:
4        print i,
5        i=i+5
```

b)
```
1    #Q3 series b : 100,98,96,....2
2    i=100
3    while i>1:
4        print i,
5        i=i-2
```

Q10)
```
1    #Q10 All factors of a number.
2    x=input("Enter a number : ")
3    print "The factors of",x,"are :"
4    for i in range(1,x+1):
5        if x%i==0:
6            print i,
```

Q11)
```
1    #To check if a number is armstrong number.
2    x=input("Enter any no. ")
3    k=x
4    sum=0
5    while k>0:
6        j=k%10     #this takes out the last digit.
7        sum=sum+(j**3)
8        k=k/10     #this removes the last digit
9    if sum==x:
10       print "It IS an Armstrong number. "
11   else:
12       print "It IS NOT an Armstrong number. "
```

Q12)
```
1    #To find net pay with help of basic salary, HRA and Da
2    a=raw_input("Enter name of employee : ")
3    b=raw_input("Enter employee number : ") #No use of this thing.
4    c=input("Enter basic pay of the employee : ")
5    if c>100000:
6        hra=c*0.15 #Converted HRA, DA to simpler form to multiply.
7        da=c*0.08 #changed from 8/100 to 0.08 for faster calcs and less complexity
8        netpay=c+hra+da
9        print "Salary of",a,"is",netpay,"in which HRA is",hra,"and Da is",da
10   elif c>50000 and c<=100000:
11       hra=c*0.1 #Similarly changed for every calculation part into decimals
12       da=c*0.05
13       netpay=c+hra+da
14       print "Salary of",a,"is",netpay,"in which HRA is",hra,"and Da is",da
15   elif c<=50000:
16       hra=c*0.05
17       da=c*0.03
18       netpay=c+hra+da
19       print "Salary of",a,"is",netpay,"in which HRA is",hra,"and Da is",da
```

Q13)
```
1    #to find all prime no.s upto a given number.
2    a=input("Enter end no. : ")
3    print "The prime numbers upto ",a,"are : "
4    for num in range(1,a+1):
5        for i in range(2,num):
6            if (num%i)==0:
7                break
8        else:
9            print num,
```

Q14)

Q15)

```
1   #Binary to Decimal conversion program.a
2   binary = raw_input('enter a in binary: ')
3   decimal = 0
4   for digit in binary:
5       decimal = decimal*2 + int(digit)
6   print decimal,
```

Q20)

```
1   #To find sum of all digits entered
2   a=input("Enter a number : ")
3   k=a
4   s=0
5   while k>0:
6       c=k%10
7       s=s+c
8       k=k/10
9   print "Sum is ",s
```

Q16)

```
1   #To find sum of complex no.
2   print "Enter complex no. in which 'a' is real part and 'b' is imaginary part"
3   a=input("Enter a (real part) : ")
4   b=input("Enter b (imaginary part without 'i') : ")
5   print "Complex no. 1 is = ",a,"+",b,"i"
6   print "Enter another imaginary no. in same way. "
7   x=input("Enter 'a' (real part) for another complex no. : ")
8   y=input("Enter 'b' (imaginary part without 'i') : ")
9   print "Complex no. 2 is =",x,"+",y,"i"
10  s1=a+x
11  s2=b+y
12  print "sum is ",s1,"+",s2,"i"
```

Q17)

```
1   #To find product of 2 complex no.s (by ins)
2   print "Enter complex no. in which 'a' is real part and 'b' is imaginary part"
3   a=input("Enter a (real part) : ")
4   b=input("Enter b (imaginary part without 'i') : ")
5   print "Complex no. 1 is = ",a,"+",b,"i"
6   print "Enter another imaginary no. in same way. "
7   x=input("Enter 'a' (real part) for another complex no. : ")
8   y=input("Enter 'b' (imaginary part without 'i') : ")
9   print "Complex no. 2 is =",x,"+",y,"i"
10  p1=(a*x)
11  p2=(a*y)+(b*x)
12  p3=(b*y)
13  print "product is ",p1,"+",p2,"i"," +",p3,"i^2"
```

Q21)

```
1   #Reversal of a number entered by an user.
2   num=input("Enter any number ")
3   n=num
4   r=0
5   while n>0:
6       d=n%10
7       n=n/10
8       r=(r*10)+d
9   print "Reverse of that no. is :",r
```

```
1   #made by Gm Harshvardhan
2   #To input username&pass and check if it's correct. Q22
3   u=[]
4   p=[]
5   count=input("Enter number of usernames you want to save : ")
6   for i in range(0, count):
7       username=raw_input("Enter username to save : ")
8       password=raw_input("Enter password to save : ")
9       position_user=len(u)+1
10      position_pass=len(p)+1
11      u.append(username)
12      p.append(password)
13  #Search function begins
14  def passcheck():
15      user_=raw_input("Enter username to log in : ")
16      pass_=raw_input("Ente password to log in : ")
17      if user_ in u:
18          if pass_ in p:
19              if position_user==position_pass:
20                  print "Verified user. "
21          else:
22              print "Password doesn't match. "
23      else:
24          print "Username doesn't exist"
25  passcheck()
```

Q18)

```
1   #To find sum of 2 distances with feet and inches
2   print "Enter information for 1st distance "
3   a=input("Enter feet : ")
4   b=input("Enter inch : ")
5   print
6   print "Enter information for 2nd distance "
7   x=input("Enter feet : ")
8   y=input("Enter inch : ")
9   print
10  s1=a+x
11  s2=b+y
12  #Since 1feet=12inch, convert inches to feet if >12
13  if s2>12:
14      c=s2/12
15      s1=s1+c
16      s2=s2-(12*c)
17  print "Sum of their distance is",s1,"feet and",s2,"inches"
```

Q19)

```
1   #difference in 2 times with hours,minutes and seconds.
2   print "Enter information for time 1"
3   a=input("Enter time in hours : ")
4   b=input("Enter time in minutes : ")
5   c=input("Enter time in seconds : ")
6   print "You entered - ",a,":",b,":",c
7   print
8   print "Enter information for time 2"
9   x=input("Enter time in hours : ")
10  y=input("Enter time in minutes : ")
11  z=input("Enter time in seconds : ")
12  print "You entered - ",x,":",y,":",z
13  print
14  i=a-x
15  j=b-y
16  k=c-z
17  print "The difference is - ",i,":",j,":",k,":"
18  print "or",i,"hours",j,"minutes",k,"and seconds "
19  #Haven't added complex functions.. The time might show
```

Q25)

```
1   #To check if 2 strings are equal or not
2   a=raw_input("Enter any string : ")
3   b=raw_input("Enter another string : ")
4   if a==b:
5       print "The strings are equal "
6   else:
7       print "The strings are not equal "
```

Q29)

```
1   #Input and store n customer names and numbers.
2   d={}
3   while True:
4       a=raw_input("Enter customer's name : ")
5       b=raw_input("Enter phone no. : ")
6       d[a]=b
7       c=raw_input("Do you want to add more customers? 'y' / 'n' ")
8       if c=='Y' or c=='y':
9           continue
10      else:
11          break
12  print "The customer list has been created. It is - "
13  print d
14  #Search function will be added for Q30 (Part 1)
```

```
1    #made by GM Harshvardhan [12-B DPSB]
2    #To input a particular numnber in a particular position in list
3    lst=input("Enter list : ")
4    enter=input("Enter the digit to be input : ")
5    pos=input("Enter position after which it will be added : ")
6    newlst=lst[:pos] + [enter] + lst[pos:]
7    print newlst
```

Q27)

```
1    #To input n numbers and search in the list
2    l=[]
3    c="y"
4    while c=="y":
5        n=input("Enter number to add in the list : ")
6        l.append(n)
7        c=raw_input("Do you want to add more numbers ? 'y' or 'n' ")
8    print "list created"
9    print "list is - ",l
10   #Search program begins
11   while True:
12       x=input("Enter the no. you want to search in list : ")
13       if x in l:
14           print "Yes, The list contains",x,"and the index of that is ",l.index(x)
15       else:
16           print "No. There's no element like this."
17       j=raw_input("Do you want to continue searching for numbers? 'y' or 'n'")
18       if j=='y':
19           continue
20       else:
21           print "Okay. The program is quitting."
22           break
```

```
1    #Input and store n customer names and numbers.
2    d={}
3    while True:
4        a=raw_input("Enter customer's name : ")
5        b=raw_input("Enter phone no. : ")
6        d[a]=b
7        c=raw_input("Do you want to add more customers? 'y' / 'n' ")
8        if c=='Y' or c=='y':
9            continue
10       else:
11           break
12   print "The customer list has been created. It is - "
13   #Search function begins
14   while True:
15       x=raw_input("Enter customer name to search their phone no. ")
16       print "The number of that customer is - ",d[x]
17       y=raw_input("Do you want to search for more customer numbers? 'y' / 'n' : ")
18       if y=='Y' or y=='y':
19           continue
20       else:
21           break
22   print "Program stopped. "
```

Q30)