CSA0888-PYTHON PROGRAMMING FOR NATURAL LANGUAGE PROCESSING

IMPORTANT QUESTIONS BY DR E ANBALAGAN,PROFESSOR/CSE

1)WRITE A PYTHON PROGRAM TO LEAP YEAR OR NOT?

SOLUTION:-

```
n=int(input("enter the year:"))
if (n%400==0) and (n%100==0):
    print("leap year")
elif(n%4==0)and(n%100!=0):
    print("leap year")
else:
    print("not a leap year")
```

2) WRITE A PYTHON PROGRAM TO PRINT AREA OF THE CIRCLE AND TRIANGLE?

SOLUTION: -

```
r=int(input("enter the radius value:"))
area_circle=3.14*r*r
print("Area of circle:",area_circle)
base=int(input("enter the base of the triangle:"))
height=int(input("enter the height of the triangle:"))
area_triangle=0.5*base*height
print("Area of triangle:", area_triangle)
```

3)WRITE A PYTHON PROGRAM TO PRINT SIMPLE INTREST AND COMPOUND INTREST?

SOLUTION: -

```
p=int(input("enter the principle amount:"))
r=int(input("enter the rate:"))
t=int(input("enter the time:"))
simple=int(p*(r/100)*t)
compound=round((p*(1+r/100)**t)-p)
print("simple:",simple)
print("compound:", compound)
```

4) WRITE A PYTHON PROGRAM TO CHECK WHETHER THE GIVEN NUMBER IS ODD OR EVEN?

SOLUTION: -

```
n=int(input("enter the number:"))
if(n%2==0):
    print("even number")
else:
    print("odd number")
```

5) WRITE A PYTHON PROGRAM TO CHECK WHETHER THE GIVEN NUMBER IS POSITIVE OR NEGATIVE?

SOLUTION:-

```
n=int(input("enter n: "))
if n>0:
    print("positive")
else:
    print("negative")
```

6)WRITE A PYTHON PROGRAM TO CONVERT DECIMAL NUMBER TO BINARY?

SOLUTION: -

```
n=int(input("enter the decimal number:"))
binary=0
j=1
while(n!=0):
    i=n%2
    binary=binary+(i*j)
    n=n//2
    j*=10
print("binary:",binary)
```

CONVERT BINARY NUMBER TO DECIMAL

```
b=input("enter binary number:")
decimal=0
power=0
for i in reversed(b):
    decimal+=int(i)*(2**power)
    power+=1
print(decimal)
```

7) WRITE A PYTHON PROGRAM TO PRINT THE GRADE SYSTEM?

SOLUTION: -

```
m1=int(input("enter the mark1:"))
m2=int(input("enter the mark2:"))
m3=int(input("enter the mark3:"))
total=m1+m2+m3
average=total/3
if(average>=90 and average<=100):
    print("Average:",average)
    print("you got S grade")
elif(average>=80 and average<90):
    print("Average:",average)
    print("you got A grade")
elif(average>=70 and average<80):
    print("Average:",average)
    print("you got B grade")
elif(average>=60 and average<70):
    print("Average:",average)
    print("you got C grade")
elif(average>=50 and average<60):
    print("Average:",average)
    print("you got D grade")
elif(average<50 and average>0):
    print("please enter valid input")
```

8) WRITE A PYTHON PROGRAM TO FIND ALL PERMUTATION OF GIVEN NUMBER?

SOLUTION: -

```
import itertools
n=input("enter the number:")
res=list(itertools.permutations(n))
for i in res:
    print(''.join(i))
```

9)WRITE A PYTHON PROGRAM TO PRINT SUM OF THE SERIES? (1+2+3+4+....+n)

SOLUTION: -

```
n=int(input("enter the number:"))
sum=0
for i in range(n+1):
    sum+=i
print("sum:”, sum)
```

10) WRITE A PYTHON PROGRAM TO PRINT SUM OF SQUARE OF THE SERIES? ($1^2+2^2+3^2+4^2+....+n^2$)

SOLUTION: -

```
n=int(input("enter the number:"))
sum=0
for i in range(n+1):
    sum+=i**2
print("sum:”, sum)
```

11)WRITE A PYTHON PROGRAM TO FIND THE FACTORIAL OF GIVEN NUMBER?

SOLUTION: -

```
n=int(input("enter the number:"))
fact=1
for i in range(1, n+1):
    fact*=i
print("factorial:",fact)
```

12)WRITE A PYTHON PROGRAM TO FIND SUM OF THE SERIES OF FACTORIAL? (1!+2!+3!+4!+....+n!)

SOLUTION:-

```
n=int(input("enter the number:"))
fac=1
sum=0
for i in range(1, n+1):
    fac*=i
    sum+=fac
print("factorial sum:",sum)
```

13)WRITE A PYTHON PROGRAM TO PRINT PATTERN?

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

SOLUTION:-

```
n=int(input("enter n :"))
for i in range(1,n+1):
    for j in range(1,i+1):
        print(j,end=" ")
    print(" ")
```

14)WRITE A PYTHON PROGRAM TO PRINT PATTERN?

```
+
+ +
+ + +
+ + + +
+ + + + +
```

SOLUTION:-

```
n=int(input("enter n :"))
for i in range(1,n+1):
    for j in range(1,i+1):
        print("+",end=" ")
    print(" ")
```

l15) WRITE A PYTHON PROGRAM TO PRINT FIBONACCI SERIES OF GIVEN NUMBER?

SOLUTION: -

```
n=int(input("enter the number:"))
```

```
a=0
b=1
count=2
print("fibonacci series of",n,"is:",end='')
print(a, end=',')
print(b,end=',')
while(count<n):
    c=a+b
    a=b
    b=c
    print(c,end=',')
    count+=1
```

16) WRITE A PYTHON PROGRAM TO EXECUTE ADDITION OF TWO MATRIX?

SOLUTION: -

```
a= [[1,2], [3,4]]
b= [[5,6], [7,8]]
res= [[0,0], [0,0]]
for i in range(len(a)):
    for j in range (len (a)):
        res[i][j] =a[i][j]+b[i][j]
print ("sum:", res)
```

17) WRITE A PYTHON PROGRAM TO EXECUTE MULTIPLICATION OF TWO MATRIX?

SOLUTION: -

```
a= [[1,2], [4,1]]
b= [[5,6], [7,8]]
res= [[0,0], [0,0]]
for i in range(len(a)):
    for j in range (len(b)):
        for k in range (len(res)):
         res[i][j]+=a[i][k]*b[k][j]
print ("product matrix:", res)
```

18) WRITE A PYTHON PROGRAM TO EXECUTE TRANSPOSE OF A MATRIX?

SOLUTION: -

```
a= [[1,2], [3,4]]
res= [[0,0], [0,0]]
for i in range(len(a)):
    for j in range (len (res)):
        res[i][j] =a[j][i]
print ("Transpose matrix:", res)
```

19) WRITE A PYTHON PROGRAM TO SUM OF DIAGONAL,ROW AND COLUMN?

SOLUTION:-

```
a=[[1,2,3],[2,3,4],[3,4,5]]
```

```
rsum=0
csum=0
dsum=0
print(len(a))
for i in range(len(a)):
    for j in range(len(a)):
        rsum+=a[i][j]
    print("the sum of",i,"th row is",rsum)
    rsum=0
for i in range(len(a)):
    for j in range(len(a)):
        csum+=a[j][i]
    print("the sum of",i,"th colum is",csum)
    csum=0
for i in range(len(a)):
    for j in range(len(a)):
        if i==j:
            dsum+=a[i][j]
print("the sum of diagonal: ",dsum)
```

20) WRITE A PYTHON PROGRAM TO PERFORM LIST OPERATIONS?

SOLUTION:-

```
a=[5,9,3,4,1,6]
print ("sort:",sorted(a) )
```

```
print("reverse:", a[::-1])
print("max:", max(a))
print("min:",min(a))
print("length:",len(a))
```

20) WRITE A PYTHON PROGRAM TO FIND THE TARGET ELEMENT PRESENT IN LIST OR NOT?

SOLUTION:-

```
a=[1,2,3,4,5]
t=int(input("enter search element: "))
if t in a:
    print("found")
else:
    print("not found")
```

21) WRITE A PYTHON PROGRAM TO MERGE TWO LISTS?

SOLUTION:-

```
a=[1,2,3,4]
b=[9,7,8]
c=a+b
print(c)
```

22) WRITE A PYTHON PROGRAM TO COUNT THE NUMBER OF OCCURANCE OF AN ELEMENT?

SOLUTION:-

```
a=[1,2,3,4,2,3,5,2]
n=int(input("enter the element to count its occurance:"))
count=0
for i in a:
    if n==i:
        count+=1
print(count)
```

23) WRITE A PYTHON PROGRAM TO INSERT AN ELEMENT IN A LIST?

SOLUTION:-

```
a=[1,2,3,4]
a.append(8)
print(a)
```

24) WRITE A PYTHON PROGRAM TO FIND INDEX OF AN ELEMENT IN A LIST?

SOLUTION:-

```
a=[1,2,3,4,5,6]
n=int(input("enter an element to find its index value:"))
for i in range(len(a)):
    if n==a[i]:
        print(i)
```

25) WRITE A PYTHON PROGRAM TO FIND ODD AND EVEN ELEMENTS OF A LIST?

SOLUTION:-

```
a=[1,2,4,3]
even=[]
odd=[]
for i in a:
    if i%2==0:
        even.append(i)
    else:
        odd.append(i)
print("odd: ",odd)
print("even:",even)
```

26) WRITE A PYTHON PROGRAM TO FIND DUPLICATE ELEMENTS IN A LIST?

SOLUTION:-

```
a=[1,2,2,3,4,5,5,6]
v=[]
for i in range(len(a)):
    for j in range(len(a)):
        if i!=j:
            if a[i]==a[j]:
                if a[i] in v:
                    break
                else:
                    v.append(a[i])
```

```
print("duplicate elements are:",v)
```

27) WRITE A PYTHON PROGRAM FOR MULTIPLICATION TABLE?

1*5=5

2*5=10

3*5=15

4*5=20

SOLUTION:-

```
n=int(input("enter n: "))
for i in range(1,11):
    print(i,"*",n,"=",n*i)
```

28) WRITE A PYTHON PROGRAM TO CREATE A DICTONARY AND PRINT IT?

SOLUTION: -

```
person={"name":"jeethu","age":22,"gender":"male","city":"chennai"}
print(person)
```

29) WRITE A PYTHON PROGRAM TO COUNT THE NO OF VOWELS AND CONSONENTS IN A STRING?

SOLUTION:-

```
a=input("enter a string: ")
b="aeiouAEIOU"
vow=0
const=0
space=0
```

```
for i in a:
    if i in b:
        vow+=1
    elif i.isspace():
        space+=1
    else:
        const+=1
print("no of vowels:",vow)
print("no. of consonants:",const)
```

30) WRITE A PYTHON PROGRAM TO PERFORM STRING OPERATIONS?

SOLUTION:-

```
#concatination
a="hello"
b="world"
c= a+b
print(c)
#reverse
c=c[::-1]
print(c)
#length
length=len(c)
print("length:",length)
#slice
```

```
d=c[::2]
print(d)
```

31) WRITE A PYTHON PROGRAM TO CHECK IT IS A SUBSTRING OR NOT?

SOLUTION:-

```
a=input("enter string: ")
b=input("enter substring: ")
if b in a:
    print("yes it is a substring")
else:
    print("not a substring")
```

32) WRITE A PYTHON PROGRAM TO CONVERT UPPERCASE AND LOWERCASE OF A STRING?

SOLUTION:-

```
a=input("enter string:")
print("uppercase:",a.upper())
print("lowercase:",a.lower())
```

33) WRITE A PYTHON PROGRAM TO CHECK IT A PALINDROME OR NOT?

SOLUTION:-

```
a=input("enter string:")
b=a[::-1]
if a==b:
```

```
    print("palindrome")
else:
    print("not a palindrome")
```

34) WRITE A PYTHON PROGRAM TO FIND NUMBER OF WORDS IN A STRING?

SOLUTION:-

```
n=input("enter string: ")
b=n.split()
print(b)
print("no of words:",len(b))
```

35) WRITE A PYTHON PROGRAM TO CHECK PERFECT NUMBER OR NOT?

SOLUTION:-

```
n = int(input("Enter any Number: "))
Sum = 0
for i in range(1, n):
    if(n% i == 0):
        Sum = Sum + i
if (Sum == n):
    print("Perfect Number")
else:
    print(" not a Perfect Number" )
```

36) WRITE A PYTHON PROGRAM TO CHECK AMSTRONG NUMBER OR NOT?

SOLUTION:-

```
n=int(input("enter n: "))
a=[int(i) for i in str(n)]
sum=0
for i in a:
   sum+=i**3
if sum==n:
   print("amstrong number")
else:
    print("not a amstrong number")
```

37) WRITE A PYTHON PROGRAM TO CHECK TECH NUMBER OR NOT?

SOLUTION:-

```
n = 3025
m = str(n)
a = m[:len(m)//2]
b = m[len(m)//2:]
c = int(a)+int(b)
d = c**2
if(d==n):
   print("Tech number")
else:
   print("Not a Tech number")
```

38) WRITE A PYTHON PROGRAM TO CHECK PRIME NUMBER OR NOT?

SOLUTION:-

```
n=int(input("enter n:"))
flag=0
for i in range(2,n):
    if n%i==0:
        print("non prime")
        break
else:
    print("prime")
```

39) WRITE A PYTHON PROGRAM TO CHECK COMPOSITE NUMBER OR NOT?

SOLUTION:-

```
n=int(input("enter n:"))
flag=0
for i in range(2,n):
    if n%i==0:
        print("composite")
        break
else:
    print("non composite")
```

40) WRITE A PYTHON PROGRAM TO CHECK HARSHAD NUMBER OR NOT?

SOLUTION:-

```
num=int(input("Enter the number:"))
Sum=0
temp=num
while temp>0:
   digit=temp%10
   Sum+=digit
   temp=temp//10
if num%Sum==0:
   print("Harshad Number")
else:
   print("Not a Harshad Number")
```

41) WRITE A PYTHON PROGRAM TO FIND LSB AND MSB?

SOLUTION:-

```
n=int(input("enter a binary number:"))
b=str(n)
print("LSB:",b[-1])
print("MSB:",b[0])
```

42) WRITE A PYTHON PROGRAM TO FIND MEAN,MEDIAN AND MODE?

SOLUTION:-

```
a=[1,2,2,3,4,5]
n=len(a)
```

```
s=sum(a)
mean=s/n
print("mean: ",mean)
if n%2==0:
    m1=a[n//2]
    m2=a[n//2-1]
    median=(m1+m2)/2
else:
    median=a[n//2]
print("median: ",median)
mode=max(a,key=a.count)
print("mode: ",mode)
```

USING LIBRARY

```
import statistics
a=[1,2,3,4,5,5]
mean=statistics.mean(a)
print(mean)
median=statistics.median(a)
print(median)
mode=statistics.mode(a)
print(mode)
```

43) WRITE A PYTHON PROGRAM TO FIND LCM AND GCD?

SOLUTION:-

```
n=int(input("enter n:"))
m=int(input("enter m:"))
d=max(n,m)
v=[]
for i in range(2,d):
    if (n%i==0)and(m%i==0):
        v.append(i)
print(v)
hcf=max(v)
lcm=(n*m)/hcf
gcd=(n*m)/lcm
print(lcm,gcd)
```