**केंद्रीय विद्यालय संगठन**

**KENDRIYA VIDYALAYA SANGATHAN**

**अध्ययन सामग्री**

**STUDY MATERIAL**

**कक्षा बाहरवीं**

**CLASS XII**

**कंप्यूटर विज्ञान**

**COMPUTER SCIENCE (083)**

**2019-20**



**चंडीगढ़ संभाग**

**CHANDIGARH REGION**

**STUDY MATERIAL FOR HIGH ACHIEVERS OF CLASS XII**

**(COMPUTER SCIENCE)**

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**Salient features of this Study Material**

* This study material is in the form of Question Bank comprising of solved questions from each chapter of the syllabus.
* It is a collection of a number of challenging questions based on High Order Thinking Skill of students.
* It aims at providing help to very high scorer students who may miss 100 out of 100 because of not being exposed to new type of questions, being used to only conventional types of questions and not paying attention towards the topics which are given in the reference books and syllabus of Computer Science as per CBSE guidelines.
* It contains guidelines, hints and solutions for really challenging questions and topics.
* It contains a number of fresh/new questions (solved), which shall increase the confidence level of the students when they will solve them as per CBSE guidelines.
* Such kind of questions shall draw the attention of both the students and the teachers, and will help all of us in achieving the aim of 100% result with healthy PI.

*“Things work out best for those who make the best of how things work out.”*

**ALL THE BEST TO OUR DEAR STUDENTS…..**

**KENDRIYA VIDYALAYA SANGATHAN, CHANDIGARH REGION**

**COMPUTER SCIENCE (Theory)**

**Class XII - Code: 083 (2019-20)**

**Blue Print**

(Weightage to different topics/content units)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S. No** | **UNIT** | **VSA/OTQ****1 Mark** | **SA I****2 Marks** | **SA II****3 Marks** | **LA****4 Marks** | **Total** |
| 1 | UNIT 1-Programming and Computational Thinking-2 1. Python Revision Tour
 | 6 | 1 | -- | -- | **08** |
| 1. Function/Libraires/Recursion
 | 2 | 2 | 2 | -- | **12** |
| 1. File Handling
 | -- | 1 | -- | -- | **02** |
| 1. Idea of Algorithm Efficiency
 |  | 2 | -- | -- | **02** |
| 1. Data Visualization
 | -- | 1 | -- | -- | **02** |
| 1. Data Structure
 | -- | -- | -- | 1 | **04** |
| 2 | UNIT 2- Computer Networks  | 4 | 2 | 1 | 1 | **15** |
| 3 | UNIT 3 – Data Management - 2 | 4 | 2 | 1 | 1 | **15** |
| 2 | UNIT 4 – Society, Law and Ethics - 2 | 2 | 4 | - | - | **10** |
| **TOTAL** | **18(18)** | **28(14)** | **12(4)** | **12(3)** | **70 (39)** |

**Note : This blue print is designed on the basis of Sample Question Paper provided by CBSE in Sept. 2019.**

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**CHAPTER 1, 2 & 3 : PYTHON REVISION TOUR I & II, WORKING WITH FUNCTIONS**

**ERROR FINDING QUESTIONS**

Q 1. Find error in the following code(if any) and correct code by rewriting code and underline the correction;-

x= int(“Enter value of x:”)

for in range [0,10]:

 if x=y

 print( x+y)

 else:

 Print( x-y)

Q 2. Rewrite the following program after finding and correcting syntactical errors and underlining it.

a,b = 0

if (a = b)

a +b = c

print( z)

Q 3. Rewrite the following code in python after removing all syntax

error(s). Underline each correction done in the code.

250 = Number

WHILE Number<=1000:

 if Number=>750

 print (Number)

 Number=Number+100

else

print( Number\*2)

 Number=Number+50

 Q 4. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

Val = int(rawinput("Value:"))

Adder = 0

for C in range(1,Val,3)

 Adder+=C

 if C%2=0:

 Print (C\*10)

 Else:

 print (C\*)

print (Adder)

Q5. Rewrite the following code in python after removing all syntax error(s).

Underline each correction done in the code.

25=Val

for I in the range(0,Val)

 if I%2==0:

 print( I+1)

 Else:

 print (I-1

Q6. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

STRING=""WELCOME

NOTE""

for S in range[0,8]:

 print (STRING(S))

Q 7. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

a=int{input("ENTER FIRST NUMBER")}

b=int(input("ENTER SECOND NUMBER"))

c=int(input("ENTER THIRD NUMBER"))

if a>b and a>c

 print("A IS GREATER")

if b>a and b>c:

 Print(" B IS GREATER")

if c>a and c>b:

 print(C IS GREATER)

Q 8. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

i==1

a=int(input("ENTER FIRST NUMBER"))

FOR i in range[1,11];

 print(a,"\*=",i,"=",a\*i)

Q. 9 Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

a=”1”

while a>=10:

 print("Value of a=",a)

 a=+1

Q 10. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

Num=int(rawinput("Number:"))

sum=0

for i in range(10,Num,3)

 Sum+=1

 if i%2=0:

 print(i\*2)

 Else:

 print(i\*3 print Sum)

Q 11. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

weather='raining'

if weather='sunny':

 print("wear sunblock")

elif weather='snow':

 print("going skiing")

else:

 print(weather)

Q 12. Write the modules that will be required to be imported to execute the following code in Python.

def main( ):

 for i in range (len(string)) ):

 if string [i] = = ‘’ “

 print

 else:

 c=string[i].upper()

 print( “string is:”,c)

print (“String length=”,len(math.floor()))

Q.13. Observe the following Python code very carefully and rewrite it after removing all syntactical errors with each correction underlined.

DEF execmain():

x = input("Enter a number:")

if (abs(x)=x):

 print ("You entered a positive number")

else:

x=\*-1

 print "Number made positive:"x

execmain()

Q 14.- Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code

x=integer(input('Enter 1 or 10'))

if x==1:

for x in range(1,11)

 Print(x)

Else:

 for x in range(10,0,-1):

 print(x)

15.Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

30=To

for K in range(0,To) IF k%4==0:

print (K\*4) Else:

print (K+3)

**OUTPUT FINDING QUESTIONS**

Q1 Find output generated by the following code:

p=10

q=20

p\*=q//3

q+=p=q\*\*2

print(p,q)

Q2 Find output generated by the following code:

String Str=”Computer”

Str[-4:]

Str\*2

Q3 Find out the output of the Following –

 x=20

 x=x+5

 x=x-10

print (x)

x,y=x-1,50

print (x,y)

Q4 Find out the output of the Following –

 for a in range(3,10,3):

 for b in range(1,a,2):

print(b, end=’ ‘)

 print ()

Q5 FIND OUTPUT OF FOLLOWING

x=10

y=5

for i in range(x-y\*2):

 print("%",i)

Q6. Find output

x="one"

y="two"

c=0

while c<len(x):

 print(x[c],y[c])

 c=c+1

Q 7:

for i in range(-1,7,2):

 for j in range(3):

 print(i,j)

Q.8

string=”aabbcc”

count=3

while True:

 if string[0]=='a':

 string=string[2:]

 elif string[-1]=='b':

 string=string[:2]

 else:

 count+=1

 break

print(string)

print(count)

Q9:

x="hello world"

print(x[:2],x[:-2],x[-2:])

print(x[6],x[2:4])

print(x[2:-3],x[-4:-2])

Q 10. Find and write the output of the following python code :

Msg1="WeLcOME"

Msg2="GUeSTs"

Msg3=""

for I in range(0,len(Msg2)+1):

if Msg1[I]>="A" and Msg1[I]<="M":

Msg3=Msg3+Msg1[I]

elif Msg1[I]>="N" and Msg1[I]<="Z":

Msg3=Msg3+Msg2[I]

else:

Msg3=Msg3+"\*"

print Msg3

Q 11. Find and write the output of the following python code :

def Changer(P,Q=10):

 P=P/Q

 Q=P%Q

 print P,"#",Q

 return P

A=200

B=20

A=Changer(A,B)

print A,"$",B

B=Changer(B)

print A,"$",B

A=Changer(A)

print A,"$",B

Q 12. Find and write the output of the following python code: 2

Data = ["P",20,"R",10,"S",30]

Times = 0

Alpha = ""

Add = 0

for C in range(1,6,2):

 Times= Times + C

 Alpha= Alpha + Data[C-1]+"$"

 Add = Add + Data[C]

print Times,Add,Alpha

Q13 Find and write the output of the following python code:

Text1="AISSCE 2018"

Text2=""

I=0

while I<len(Text1):

 if Text1[I]>="0" and Text1[I]<="9":

 Val = int(Text1[I])

 Val = Val + 1

 Text2=Text2 + str(Val)

elif Text1[I]>="A" and Text1[I] <="Z":

 Text2=Text2 + (Text1[I+1])

else:

 Text2=Text2 + "\*"

 I=I+1

print Text2

Q14 Find and write the output of the following python code:

TXT = ["20","50","30","40"]

CNT = 3

TOTAL = 0

for C in [7,5,4,6]:

 T = TXT[CNT]

 TOTAL = float (T) + C

 print TOTAL

 CNT-=1

Q 15

line = "I'll come by then."

eline = ""

for i in line:

    eline += chr(ord(i)+3)

print(eline)

Q 16

line =  "What will have so will"

L = line.split('a')

for i in L:

    print(i, end=' ')

Q 17 Find output

 p=5/2

 q=p\*4

 r=p+q

 p+=p+q+r

 q-=p+q\*r

print(p,q,r)

Q 18 find output

a=(2+3)\*\*3-6/2

 b=(2+3)\*5//4+(4+6)/2

 c=12+(3\*4-6)/3

d=12%5\*3+(2\*6)//4

print(a,b,c,d)

Q 19. Find the output of the following:

def main ( ) :

 Moves=[11, 22, 33, 44]

 Queen=Moves

 Moves[2]+=22

 L=Len(Moves)

 for i in range (L)

 print “Now@”, Queen[L-i-1], “#”, Moves [i]

Q 20. Find the output of the following

L1 = [100,900,300,400,500]

START = 1

SUM = 0

for C in range(START,4):

 SUM = SUM + L1[C]

 print(C, ":", SUM)

 SUM = SUM + L1[0]\*10

print(SUM)

Q. 21.Find and write the output of the following python code:

def fun(s):

k=len(s) m=" "

for i in range(0,k): if(s[i].isupper()):

m=m+s[i].lower()

elif s[i].isalpha():

m=m+s[i].upper()

else:

m=m+'bb' print(m)

fun('school2@com')

Q. 22. Find the output of the given program :

def Change(P ,Q=30):

 P=P+Q

Q=P-Q

print( P,"#",Q)

return (P)

R=150

S=100

R=Change(R,S)

print(R,"#",S)

S=Change(S)

23.

x = "abcdef"

i = "a"

while i in x:

 print(i, end = " ")

**Questions Based on Tuple**

Q: Find the output of following codes

1. t1=("sun","mon","tue","wed")
	1. print(t1[-1])
2. t2=("sun","mon","tue","wed","thru","fri")

for i in range (-6,2):

print(t2[i])

1. t3=("sun","mon","tue","wed","thru","fri")

if "sun" in t3:

for i in range (0,3):

print(t2[i])

else:

for i in range (3,6):

print(t2[i])

1. t4=("sun","mon","tue","wed","thru","fri")

if "sun" not in t4:

for i in range (0,3):

print(t4[i])

else:

for i in range (3,6):

print(t4[i])

1. t5=("sun",2,"tue",4,"thru",5)

if "sun" not in t4:

for i in range (0,3):

print(t5[i])

else:

for i in range (3,6):

print(t5[i])

1. t6=('a','b')

t7=('p','q')

t8=t6+t7

print(t8\*2)

1. t9=('a','b')

t10=('p','q')

t11=t9+t10

print(len(t11\*2))

1. t12=('a','e','i','o','u')

p,q,r,s,t=t12

print("p= ",p)

print("s= ",s)

print("s + p", s + p)

1. t13=(10,20,30,40,50,60,70,80)

t14=(90,100,110,120)

t15=t13+t14

print(t15[0:12:3])

Q. Find the errors

1. t1=(10,20,30,40,50,60,70,80)

t2=(90,100,110,120)

t3=t1\*t2

Print(t5[0:12:3])

1. t1=(10,20,30,40,50,60,70,80)

i=t1.len()

Print(T1,i)

1. t1=(10,20,30,40,50,60,70,80)

t1[5]=55

t1.append(90)

print(t1,i)

1. t1=(10,20,30,40,50,60,70,80)

t2=t1\*2

t3=t2+4

print t2,t3

t1=(10,20,30,40,50,60,70,80)

str=””

str=index(t1(40))

print(“index of tuple is ”, str)

str=t1.max()

print(“max item is “, str)

List Based Question

Q.1. Give the output of the following code:-

list=['p','r','o','b','l','e','m']

list[1:3]=[]

print(list)

list[2:5]=[]

print(list)

Q 2. Give the output of the following code:-

l1=[13,18,11,16,13,18,13]

print(l1.index(18))

print(l1.count(18))

l1.append(l1.count(13))

print(l1)

Q 3 Find the error in following code. State the reason of the error.

aLst = { ‘a’:1 ,’ b’:2, ‘c’:3 }

print (aLst[‘a’,’b’])

|  |
| --- |
| Q 4. list1 =[1998, 2002, 1997, 2000] list2 =[2014, 2016, 1996, 2009]   print"list1 + list 2 = : ", list1 +list2   #statement 1   print"list1 \* 2 = : ", list1 \*2  #statement 2 Q5. list1 = [1, 2, 3, 4, 5]  list2 =list1   list2[0] =0;   print("list1= : ", list1)  |

Q6. What is the output of the following:

|  |
| --- |
| data =[2, 3, 9] temp =[[x forx in[data]] forx inrange(3)] print(temp)  |

a) [[[2, 3, 9]], [[2, 3, 9]], [[2, 3, 9]]]
b) [[2, 3, 9], [2, 3, 9], [2, 3, 9]]
c) [[[2, 3, 9]], [[2, 3, 9]]]
d) None of these

Q7.

|  |
| --- |
| temp =['Geeks', 'for', 'Geeks'] arr =[i[0].upper() fori intemp] print(arr)  |

a) [‘G’, ‘F’, ‘G’]
b) [‘GEEKS’]
c) [‘GEEKS’, ‘FOR’, ‘GEEKS’]
d) Compilation error

Q8.What will be the output?

1. d1 ={"john":40, "peter":45}
2. d2 ={"john":466, "peter":45}
3. d1 > d2

a) TRUE

b) FALSE

c) ERROR

d) NONE

Q9. What will be the error of the following code Snippet?

Lst =[1,2,3,4,5,6,7,8,9]

Lst[::2]=10,20,30,40,50,60

Print[Lst]

Q10. Find the error in following code. State the reason of the error

aLst={‘a’:1,’b’:2,’c’:3}

print(aLst[‘a’,’b’])

#### Q11. What Will Be The Output Of The Following Code Snippet?

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

#### print(a[3:0:-1])

**A.** Syntax error
**B.** [4, 3, 2]
**C.** [4, 3]
**D.** [4, 3, 2, 1]

Q 12.What Will Be The Output Of The Following Code Snippet?

fruit\_list1 = ['Apple', 'Berry', 'Cherry', 'Papaya']

fruit\_list2 = fruit\_list1

fruit\_list3 = fruit\_list1[:]

fruit\_list2[0] = 'Guava'

fruit\_list3[1] = 'Kiwi'

sum = 0

for ls in (fruit\_list1, fruit\_list2, fruit\_list3):

 if ls[0] == 'Guava':

 sum += 1

 if ls[1] == 'Kiwi':

 sum += 20

print (sum)

**A.** 22
**B.** 21
**C.** 0
**D.** 43

Q13. What Will Be The Output Of The Following Code Snippet?

a = {(1,2):1,(2,3):2}

print(a[1,2])

A. Key Error

B. 1

C. {(2,3):2}

D. {(1,2):1}

Q14. What Will Be The Output Of The Following Code Snippet?

my\_dict = {}

my\_dict[1] = 1

my\_dict['1'] = 2

my\_dict[1.0] = 4

sum = 0

for k in my\_dict:

 sum += my\_dict[k]

print (sum)

**A.** 7
**B.** Syntax error
**C.** 3
**D.** 6

Q15.What Will Be The Output Of The Following Code Snippet?

my\_dict = {}

my\_dict[(1,2,4)] = 8

my\_dict[(4,2,1)] = 10

my\_dict[(1,2)] = 12

sum = 0

for k in my\_dict:

 sum += my\_dict[k]

print (sum)

print(my\_dict)

**A.** Syntax error
**B.** 30
    {(1, 2): 12, (4, 2, 1): 10, (1, 2, 4): 8}
**C.** 47
    {(1, 2): 12, (4, 2, 1): 10, (1, 2, 4): 8}
**D.** 30
    {[1, 2]: 12, [4, 2, 1]: 10, [1, 2, 4]: 8}

**QUESTION BANK ON OUTPUT AND ERROR BASED QUESTIONS ON FUNCTIONS IN PYTHON**

Q. Identify the errors, underline it and correct the errors

a)Def Sum(a=1,b)

 return a+b

 print (“The sum =” Sum(7,-1)

|  |  |
| --- | --- |
| b) def main ( ) print ("hello")  |  |
|  (c) def func2() : print (2 + 3) func2(5)  |  |
|  |  |

Q1. Find the output of the following numbers:

Num = 20

Sum = 0

for I in range (10, Num, 3)

Sum+=i

if i%2==0:

print i\*2

else:

print i\*3

Q2.Find the output of the following

 Text=”gmail@com”

L=len(Text)

ntext=” “

For i in range (0,L):

 If text[i].isupper():

 ntext=ntext+text[i].lower()

 elif text[i].isalpha():

ntext=ntext+text[i].upper()

 else:

 ntext=ntext+’bb’

Q3. def power (b , p):

 r = b \*\* P

 return r

 def calcSquare(a):

 a = power (a, 2)

 return a

 n = 5

 result = calcSquare(n)

 print (result )

 Q 4. Find the output of the following-

Import math

print (math. Floor(5.5))

 Q 5. Find the output

 def gfg(x,l=[]):

 for I in range(x):

 l.append(i\*i)

 print(l)

gfg(2)

gfg(3,[3,2,1])

gfg(3)

Q 6. count =1

 def dothis():

 global count

 for I in (1,2,3)

 count+=1

 dothis()

 print count

Q 7. def addem(x,y,z):

 Print(x+y+z)

 def prod(x,y,z):

 return x\*y\*z

 A=addem(6,16,26)

 B=prod(2,3,6)

 Print(a,b)

Q 8. def Func(message,num=1):

 print(message\*num)

 Func(‘python’)

 Func(‘easy’,3)

Q 9.def Check(n1=1,n2=2)

 n1=n1+n2

 n2+=1

 print(n1,n2)

 Check()

 Check(2,1)

 Check(3)

Q. 10. a=10

 def call():

 global a

 a=15

 b=20

 print(a)

 call()

11.Write a user defined function GenNum(a, b) to generate odd numbers between a and b (including b)

12.. Write definition of a method/function **AddOdd(VALUES)** to display sum of odd values from the list of VALUES.

13..Write definition of a Method MSEARCH(STATES) to display all the state names

from a list of STATES, which are starting with alphabet M.

For example:

If the list STATES contains

[“MP’,”UP”,”MH”,”DL”,”MZ”,”WB”]

The following should get displayed

MP

MH

MZ

14...Write a python function generatefibo(n) where n is the limit, using a generator function

Fibonacci (max)( where max is the limit n) that produces Fibonacci series.

15. Write a definition of a method COUNTNOW(PLACES) to find and display those place names, in which

There are more than7 characters.For example :If the list PLACES contains. 3

## ["MELBORN","TOKYO","PINKCITY","BEIZING","SUNCITY"

The following should get displayed :**PINKCITY**

**General Theory questions**

1.Differentiate between the round() and floor() functions with the help of suitable example.

2.Which string method is used to implement the following:

1. To count the number of characters in the string
2. To change the first character of the string in capital letter
3. To change lowercase to uppercase letter
4. To check whether the given character is letter or a number

 3.What are default arguments ?

4.What is the difference between actual and formal parameters ?

5.What is a recursive function ?

6.What is the difference between built-in functions and modules?

7.what is the difference between local variable and global variable?

8.What are the advantages of writing functions with keyword arguments ?

9. What do you mean by scope of variables **?**

**10.** Which of the following is valid arithmetic operator in Python:

(i) //(ii) **?** (iii) **<** (iv) and

11. Write the type of tokens from the following:

 (i) if (ii) roll\_no

12**.** Which of the following are valid operators in Python:

(i) \*\* (ii) \*/ (iii) like (iv) ||

 (v) is (vi) ^ (vii) between (viii) in

13. Which of the following can be used as valid variable identifier(s) in Python?

(i) 4thSum

(ii) Total

(iii) Number#

(iv) \_Data

**Answers**

**Error Finding Answers**

**1.ANS Correct code:-**

x= int(input(“Enter value of x:”))

for in range (0,10):

if x==y:

 print( x+y)

 else:

print (x-y)

**2.ANS:- CORRECTED CODE**

a,b = 0,0

if (a = =b) :

c=a +b

 print(c)

**ANS 3 CORRECTED CODE**

Number = 250

while Number<=1000:

 if Number >= 750:

 print (Number)

 Number = Number+100

else:

 print (Number\*2)

 Number = Number+50

**ANS4. CORRECTED CODE:-**

Val = int(raw\_input("Value:")) # Error 1

Adder = 0

 for C in range(1,Val,3) : # Error 2

 Adder+=C

 if C%2==0: # Error 3

 print( C\*10 ) # Error 4

 else: # Error 5

 print (C ) # Error 6

 print Adder

**ANS 5. CORRECTED CODE**

Val = 25 #Error 1

for I in range(0,Val): #Error 2 and Error 3

 if I%2==0:

 print (I+1)

 else: #Error 4

 print (I-1)

**ANS 6 :- CORRECTED CODE:-**

STRING= "WELCOME"

NOTE=" "

for S in range (0,8) :

 print (STRING [S])

Also range(0,8) will give a runtime error as the index is out of range. It should

be range(0,7)

**Ans 7.CORRECTED CODE**

a=int(input("ENTER FIRST NUMBER"))

b=int(input("ENTER SECOND NUMBER"))

c=int(input("ENTER THIRD NUMBER"))

if a>b and a>c:

 print("A IS GREATER")

if b>a and b>c:

print(" B IS GREATER")

if c>a and c>b:

 print(" C IS GREATER ")

**Ans 8. CORRECTED CODE**

i=1

a=int(input("ENTER FIRST NUMBER"))

for i in range(1,11):

 print(a,"\*=",i,"=",a\*i)

**Ans 9.CORRECTED CODE**

a=1

while a<=10:

 print("Value of a=",a)

a+=1

**Ans.10 CORRECTED CODE**

Num=int(input("Number:"))

sum=0

for i in range(10,Num,3):

sum+=1

 if i%2==0:

 print(i\*2)

else:

 print(i\*3)

print(sum)

**Ans. 11 Corrected Code**

weather='raining'

if weather=='sunny':

 print("wear sunblock")

elif weather=='snow':

 print("going skiing")

else:

 print(weather)

**Ans.12.**

Math module and String module

**Ans 13..Corrected code:**

def execmain():

 x= input("Enter a number:") (indentation)

 if(abs(x)== x):

 print("You entered a positive number")

 else:

 x \*= -1(indentaion)

 print("Number made positive:" , x)

execmain()

**ANS:-14**

x=int(input('Enter 1 or 10'))

if x==1:

for x in range(1,11):

 print(x)

else:

 for x in range(10,0,-1):

 print(x)(indentation)

**Ans 15..**

**To=30**

for K in range**(0,To) :**

 **if** k%4==0:

print (K\*4)

 **else:**

print (K+3)

**Output**

1.Output:-

60, 480

2. ANS:- output:

uter

‘ComputerComputer’

3. ANS:

 15

14,50

ANS 4:

 1

1. 4

1 4 7

ANS 5:- NO OUTPUT

Ans 6.:

o t

n w

e o

ANS 7:

-1 0

-1 1

-1 2

1 0

1 1

1 2

3 0

3 1

3 2

5 0

5 1

5 2

Ans. 8 bbcc

 4

Ans 9:

he hello wor ld

w ll

llo wo or

ANS 10.

G\*L\*TME

Ans 11.

10 # 10

10 $ 20

2 # 2

10 $ 2

1 # 1

1 $ 2

Ans 12-

1 20 P$

4 30 P$R$

9 60 P$R$S$

Ans 13.-

ISSCE\*3129

ANS 14.

47.0

35.0

54.0

26.0

ANS 15.

L\*oo#frph#e|#wkhq1

ANS 16.

Wh t will h ve so will

Ans 17. (27.5 - 142.5 12.5)

Ans 18. (122.0 11.0 14.0 9)

Ans 19.

Now @ 44 # 11

Now @ 55 # 22

Now @ 22 # 55

Now @ 11 # 44

Ans 20.

1:900

1900

3200

3:3600

4600

**Ans 21.**

SCHOOLbbbbCOM

Ans 22.

250 # 150

250 # 100

130 # 100

Ans 23. aaaaaa **OR** infinite loop

Outputs(Tuples)

1. wed
2. sun

mon

tue

wed

thru

fri

sun

mon

1. sun

mon

tue

1. wed

thru

fri

1. 4

thru

5

1. ('a', 'b', 'p', 'q', 'a', 'b', 'p', 'q')
2. 8
3. p= a

s= o

s + p oa

1. 10,40,70,100

 Error Tuples

Ans 1 a. ti\*t2 cant multiply

b. P is in uppercase in print command

 c. t5 is not defined

Ans 2

* 1. len() is used wrongly
	2. P is in uppercase in print command
	3. T1 is not defined

Ans 3

1. 'tuple' object does not support item assignment in line 2
2. Append() Method is not with tuple

Ans. 4

 a) line 3 cannot concatenate with int

 b) Parenthesis is missing in line 4

Ans 5

1. Syntax error in index function
2. Syntax error in max function

**Answers based on LIST**

Ans.1 [‘p’,’b’,’l’,’e’,’m’]

 [‘p’,’b’]

Ans. 2

 1

 2

[13,18,11,16,13,18,13,3]

Ans 3: The above code will produce KeyError, the reason being that there is no key same as the list [‘a’,’b’]

Ans 4.

list1 + list 2 = : [1998, 2002, 1997, 2000, 2014, 2016, 1996, 2009]

list1 \* 2 = : [1998, 2002, 1997, 2000, 1998, 2002, 1997, 2000]

Ans 5. List1:[0,2,3,4,5]

Ans 6. (a)
**Explanation:**[x for x in[data] returns a new list copying the values in the list data and the outer for statement prints the newly created list 3 times.

Ans7. a

Ans 8. Type Error

Ans 9.ValueError: attempt to assign sequence of size 6 to extended slice of size 5

Ans 10. The above code produce KeyError, the reason being that there is no key same as the list[‘a’,’b’] in dictionary aLst

Ans 11. B

Ans 12. A

Ans 13. B

Ans 14.D

Ans 15 B

**FUNCTIONS(Error)**

Ans 1: def sum(a=1,b) :\_\_

 return a+b (indentation)

 print (“The sum =”, Sum(7,-1))

Ans 2: def main ( ):

 print ("hello")

 Ans 3: def func2() :

 print (2 + 3)

 func2() no parameter is to be passed

1. output:

20

 39

 32

 57

2.Output: GMAILbbCOM

 3.output: 25

4.output: 6

5.output:

[0,1]

[3,2,1,0,1,4]

[0,1,0,1,4]

6. output: 4

7. output: 36

8.output: python

 easyeasyaesy

9.Output:

 3 3

 3 2

 5 3

10 15

11. def getNum(a,b):

 for i in range(a,b+1):

 if i%2==1:

 print(i)

12.Ans def AddOdd(Values):

 n=len(NUMBERS)

 s=0

 for i in range(n):

 if (i%2!=0):

 s=s+NUMBERS[i]

 print(s)

13. Ans def MSEARCH(STATES):

 for i in STATES:

 if i[0]==’M’:

 print i

14. def Fibonacci (max):

 a, b = 0, 1

 while a <=max:

 yield a,

 a,b = b,a+b

 def generatefibo(n):

for i in Fibonacci (n): print( i)

15. Ans.l=["MELBORN","TOKYO","PINKCITY","BEIZING","SUNCITY"]

def countno(m):

 length=len(m)

 for i in range(0,length):

 if len(m[i])>7:

 print(m[i])

 countno(l)

 **General Questions**

Ans1.. The round() function is used to convert a fractional number into whole as the nearest next whereas the floor() is used to convert to the nearest lower whole number. E.g. round(5.8) = 6 and floor(5.8)= 5

Ans2.. a. len(str) b. str.capitalize() c. str.upper() d. ch.isalnum()

Ans3.. Default arguments are used in function definition, if the function is called without the argument, the default argument gets its default value.

Ans 4.Actual parameters are those parameters which are used in function call statement and formal parameters are those parameters which are used in function header (definition).

e.g. def sum(a,b): # a and b are formal parameters

 returna+b

 x,y=5,10

res=sum(x,y) # x and y are actual parameters

Ans 5. Recursion is a way of programming or coding a problem, in which a function calls itself one or more times in its body. Usually, it is returning the return value of this function call. If a function definition fulfils the condition of recursion, we call this function a recursive function.

Example:
4! = 4 \* 3!
3! = 3 \* 2!
2! = 2 \* 1

Def factorial(n):

 If n ==1:

 return 1

 else:

 return n\*factorial(n-1)

Ans 6: Built in functions can be used directly in a program in python, but in order to use modules, we have to use import statement to use them.

Ans 7.

|  |  |  |
| --- | --- | --- |
| SR.NO. | LOCAL VARIABLE | GLOBAL VARIABLE |
| 1 | It is a variable which is declared within a function or within a block. | It is a variable which is declared outside all the functions. |
| 2 | It is accessible only within a function/ block in which it is declared. | It is accessible throughtout the program. |

For example,

def change():

 n=10 # n is a local variable

x=5 # x is a global variable

print( x)

Ans 8.: i) using the function is easier as we do not need to remember the order of the arguments.

ii) we can specify values of only those parameters which we want to give, as other parameters have default argument values

Ans9. Scope of variables refers to the part of the program where it is visible, i.e, the area where you can use it

Ans10. (i)

Ans 11. i) Keyword ii)identifier

Ans 12. i) iv) vi) viii)

Ans 13.ii) and iv)

**CHAPTER 4: USING PYTHON LIBRARIES**

A python program consist of three main components

1)Library or package

2)Module

3)Function/Sub Modules

**RELATIONSHIP BETWEEN A MODULE, PACKAGE AND LIBRARY IN PYTHON**

A **module** is a file containing python definitions,variables and classes and statement with .py extension

A Python package is simply a directory of python modules

A library in python is collection of various packages. Conceptually there is no difference between package and python Library.

**Advantages of Python Modules**

1)Putting code into modules is useful because of the ability to import the module functionality.

2)Reusability:A module can be used in some other python code. Hence it provide facility of code reusability

3)A module allows us to logically organize our python code.

4)Grouping related code into a module makes the code easier to understand and use.

5)Categorisation: Similar types of attributes can be placed in a single module.

**Creation of Module :** the following point must be noted before creating a module

* A module name should always end with .py extension
* We will not able to import module if it does not end with .py
* A module name must not be a Python keyword

A module is simply a python file which contains functions,classes and variables

Let us consider the following example of a module name area.py which contains three functions name area\_circle(r),area\_square(s),area\_rect(l,b)

import math

def area\_circle(r):

 return math.pi\*r\*r

def area\_square(s):

 return s\*s

def area\_rect(l,b):

 return l\*b

**importing Modules:**There are two ways to import a modules

1. Using import statement: we can import single as well as multiple modules
	1. For importing Single module

**Syntax:**

import modulename

* 1. For importing Multiple modules

 **Syntax:**

 import modulename1,modulename2,modulename3

To Use function inside module

Syntax

modulename.function name

 2)Using from Statement :To import some particular Function(s) from module we will use import statement

 2.1 To import Particular Function

 Syntax:

 From <module name> import <write name of Function(s)>

 Or

 From <module name> import \*

(This statement will import all the functions from modules)

To use a function inside a module you have to directly call function if your are importing the modules using from statement

Example : Let us consider the following code.In this program we import the module with the help of from statement and directly use the function instead of specifying Module name

from area.py import area\_rect

area\_rect(5,4)

**Alias name of Module :**providing another name to module is known as alias name.When we provide an alias name ,then alias name is used for calling function

**Syntax:**import modulename as <alias name>

example import area as A now we will call function area\_circle using alias name A of module area like as A.area\_circle(5)

Note :we can also provide alias name to function of modules whenever we are using it with python from statement and whenever we have to call any statement then we have to provide function alias name instead of function original name ‘Example:

From area import area\_Circle as C

C(6) # C is the alias name of function area\_circle of module area

**CREATION OF LIBRARY/PACKAGE**

Steps to create and import the package

1)Create a directory named XYZ and add all the modules in the directory XYZ

Import os.mkdir(“XYZ”

2)Create a file \_init\_.py in the directory XYZ. \_init\_.py file is used to make a directory as package.This file is used to initialse the package

3)Import the package named XYZ and use the attributes in some other program

**Locating Modules**

**Python interpreter searches for module in the following sequences**

not found

Checks default path where python is installed

not found

Each directory in shells variable PYTHONPATH

Current directory

the

(1 marks question)

Q1 Which of these definitions correctly describe a module?

1. Denoted by triple quotes for providing the specifications of certain program elements.
2. Design and implementation of specific functionality to be incorporated into a program
3. Defines the specifications of how it is to be used.
4. Any program that reuses code.

Q2 Which of the following is not true about main modules?

1. When a python file is directly executed ,it is considered main module of a program
2. Main modules may import any number of modules
3. Special name given to main modules is: \_main\_
4. Other main modules can import main modules

Q3Which of the following is not a valid namespace?

1. global namespace
2. public namespace
3. built in namespace
4. local namespace

Q4 Which of the following is false about “import module name” form of import?

1. The namespace of imported module becomes part of importing module
2. This form of input prevents name clash
3. The namespace of imported module becomes available to importing module
4. The identifiers in module are accessed as: modulename.identifier

Q5 what is the order of namespaces in which python looks for an identifier?

1. python first searches the global namespace, then the local namespace and finally the built in namespace
2. python first searches the local namespace, then the global namespace and finally the built in namespace
3. python first searches the built in namespace, then the global namespace and finally the local namespace
4. python first searches the built in namespace , then the local namespace and finally the global namespace

Q6 which of these is not an advantage of using the modules?

1. Provides a means of reusing program code
2. Provides a means of dividing up tasks
3. Provides a means of reducing the size of the program
4. Provides a means of testing individual parts of the program

Q7 Which operator is used in the python to import all modules from packages?

1. . operator
2. \* operator
3. -> symbol
4. , operator

Q8 Which file must be part of the folder containing python module file to make it importable python package?

1. init.py
2. \_\_\_\_steup\_\_.py
3. \_\_init \_\_\_.py
4. setup.py

Q9 In python which is the correct method to load a module math?

1. Include math
2. Import math
3. #include<math.h>
4. using math

Q10 Which is the correct command to load just the tempc method from a module called usable?

1. Import usable,tempc
2. Import tempc from usable
3. From usable import tempc
4. Import tempc

Q11 What is the extension of the python library module?

1. .mod
2. .lib
3. .code
4. .py

 (2 marks questions)

Q1 How can you locate environment variable for python to locate the module files imported into a program?

Q2 what is the output of the following piece of code?

#mod1

def change (a):

b=[x\*2 for x in a]

print (b)

#mod2

def change (a) :

b =[x\*x for x in a]

print (b)

from mode 1 import change

from mode 2 import change

#main

S= [1,2,3]

Change (s)

Note: Both the modules mod1 and mod 2 are placed in the same program.

1. [2,4,6]
2. [1,4,9]
3. [2,4,6][1,4,9]
4. There is a name clash

Q3 What happens when python encounters an import statement in a program? What would happen,if there is one more important statement for the same module ,already imported in the same program?

Q4 What is the problem in the following piece of code?

from math import factorial

print (math.factorial (5))

Q5 What is the output of the following piece of code?

#mod1

def change (a):

 b=[x\*2 for x in a]

print (b)

#mod 2

def change (a):

b=[x\*x for x in a]

print (b)

from mod 1 import change

from mod 2 imoprt change

#main

S=[1,2,3]

Changes(s)

Q6 What would be the output produced by the following code :

Import math

Import random

print ( math.ceil (random.random()))

Justify your answer.

 (3 marks questions)

Q1 Observe the following code and answer the question based on it.

# the math\_operation module

deff add (a,b):

return a+b

def subtract(a,b):

return a-b

Fill in the blanks for the following code:

1. Math \_operation

#get the name of the module.

1. print (\_\_\_\_\_\_\_)

#output:math\_operation

# Add 1and 2

 3.print(\_\_\_\_\_\_\_(1,2) )

 # output 3

Q2 Consinder the code given in above and on the basis of it ,complete the code given below:

# import the subtract function

#from the math\_operation module

1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#subtract 1from 2

2.print(\_\_\_\_\_\_\_(2,1) )

# output : 1

# Import everything from math\_\_\_\_operations

3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

print (subtract (2,1) )

# output:1

Print (add (1,1) )

# output:2

Q3 Consider a module ‘simple’ given below:

#module simple.py

“ “ “Greets or scold on call” “ “

def greet():

 “ “ “ Greet anyone you like :-)” “ “

 Print (“Helloz”)

def scold ():

“ “ “ Use me for scolding ,but scolding is not good:-( “ “ “

 Print (“Get lost”)

Count =10

Print (“greeting or scolding- is it simple?”)

Another program ‘test.py’ imports this module.The code inside test.py is :

#test.py

import simple

print(simple.count)

What would be the output produced ,if we run the program test.py? justify your answer.

Q4 Consider the following code:

Import math

Import random

print(str(int(math.pow( random.randint (2,4),2) )), end = ‘ ’)

print(str( int ( math.pow(random.randint(2,4), 2))) , end= ‘ ’)

print ( str ( int (math.pow( random .randint (2,4),2))))

What would be possible outputs out of the given four choices?

1. 2 3 4
2. 9 4 4
3. 16 16 16
4. 2 4 9
5. 4 9 4
6. 4 4 4

Answers

(1 marks question)

Ans1 b) Design and implementation of specific functionality to be incorporated into a program

Ans 2 d)

Ans3 :b)

Ans 4 a)

Ans5 b)

Ans6:c)

Ans 7 (b)

Ans 8 (c )

Ans 9(b)

ANS 10 (C )

Ans 11 (d)

 (2 marks questions)

Ans1. Python path command is used for the same. It has a role similar to path.This variable tells the python interpreter where to locate the module files imported into a program.It should include the python source library ,directory containing python source code.

Ans2 (d)

Ans 3 When python encounters an important statement,it does the following:

* The code of imported module is interpreted and executed.
* Defined functions and variables created in the module are now available to the program that imported module.
* For imported module, a new namespace is set up with the same name as that of the module.

Any duplicate import statement for the same module in the same program is ignored by python

Ans 4 In the “from –import” from of import ,the imported identifiers (in this case factorial()) become part of the current local namespace and hence their module’s name aren’t specified along with the module name. Thus ,the statement should be:

print( factorial (5) )

Ans 5 There is a name clash. A name clash is a situation when two different entities with the same name become part of the same scope. Since both the modules have the same function name ,there is a name clash, which is an error..

Ans6 The output Produced would be 1.0

(3 marks questions)

Ans1 . 1. input

 2.math\_operation\_name\_

 3.math.operation.add

Ans 2. 1.from\_\_operation import subtract

 2.subtract

 3.from math\_\_\_ operation import\*

Ans 3 The output produced would be:

Greeting or scolding – is it simple ?

10

The reason being ,import module’s main block is executed upon import, so its important statement cause it to print:

Greting or scolding- is it simple?

And print (simple.count) statement causes output’s next line ,i.e., 10

Ans 4. The possible outputs could be (ii), (iii) (v) and (vi).

The reason being that randint () would generate an integer between range 2…4, which is then raised to power 2.

**CHAPTER 5 : FILE HANDLING**

A file in itself is a bunch of bytes stored on some storage device like hard disk, thumb drive etc.

**TYPES OF FILE**

**TEXT FILE**

1. A text file stores information in ASCII or unicode characters
2. each line of text is terminated, (delimited) with a special character known as EOL

**BINARY FILES**

1. A binary file is just a file that contains information in the same format in which the information is held in memory i.e the file content that is returned to you is raw.
2. There is no delimiter for a line
3. No translation occurs in binary file
4. Binary files are faster and easier for a program to read and write than are text files.
5. Binary files are the best way to store program information.

**Steps to process a FILE**

1)Determine the type of file usage :

in this section we determine whether file need to be open or not

2)open the file and assign its references to a file object or file handle

3)Process as required

4)close the file

**OPENING AND CLOSING FILES**

1. **open()** function is used to open a file

**Syntax:**

file variable/file handle=open(file\_name,access mode)

Example

1. F= open('abc.txt,'w')

this statement opens abc.txt in write mode

Note : if file mode is not mentioned in open function then default file mode i.e 'r' is used

 2 ) **close()** : the close() method of a file object flushes any unwritten information and close the file object after which no more writing can be done

**SYNTAX:** fileobject.close()

**FILES MODE**

it defines how the file will be accessed

|  |  |  |  |
| --- | --- | --- | --- |
| **Text File Mode** | **Binary File Mode** | **Description** | **Notes** |
| ‘r’ | ‘rb’ | Read only | File must exist already ,otherwise python raises I/O error |
| ‘w’ | ‘wb’ | Write only | \*If the file does not exist ,file is created.\*If the file exists, python will truncate existing data and overwrite in tne file. So this mode must be used with caution.  |
| ‘a’ | ‘ab’ | append | \*File is in write only mode.\*if the file exists, the data in the file is retained and new data being written will be appended to the end.\*if the file does not exist ,python will create a new file. |
| ‘r+’ | ‘r+b’ or ‘rb+’ | Read and write | \*File must exist otherwise error is raised.\*Both reading and writing operations can take place. |
| ‘w+’ | ‘w+b’ or ‘wb+’ | Write and read | \*File is created if doesn’t exist.\*If the file exists, file is truncated(past data is lost).\*Both reading and writing operations can take place. |
| ‘a+’ | ‘a+b’ or ‘ab+’ | Write and read | \*File is created if does not exist.\*If file exists, files existing data is retained ; new data is appended.\*Both reading and writing operations can take place. |

**TEXT FILE HANDLING**

**Methods to read data from files**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.NO.** | **Method** | **Syntax** | **Description** |
| 1 | Read() | <filehandle>.read( [n] ) | Reads at most n bytes ;If no n is specified, reads the entire file.Returns the read bytes in the form of a string .In [11]:file 1=open(“E:\\mydata\\info.txt”)In [12]:readInfo=file1.read(15)In [13]:print(readInfo)#prints firt 15 #characters of fileIn [14]:type(readInfo)Out[14]:str |
| 2 | Readline( ) | <filehandle>.readline([n]) | Reads a line of input ;if in is specified reads at most n bytes.Returns the read bytes in the form string ending with in(line)character or returns a blank string if no more bytes are left for reading in the file.In [20]:file1 = open(“E:\\mydata\\info.txt”)In [20]: readInfo =file1.readline()In [22]:print (readInfo) |
| 3 | readlines() | <filehandle>.readlines() | Read all lines and returns them in a listIn [23]:file1 =open(“E:\\mydata\\info text”)In [24]:readInfo =file1.readlines()In [25]:print (readInfo)In [26]:type (readInfo)Out[26]:list |

**Writing data into files**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. NO** | **Name** | **Syntax** | **Description** |
| 1 | Write() | <filehandle>.write(str1) | Write string str1 to file referenced by<filehandle> |
| 2 | Writelines() | <filehandle>.writelines (L) | Writes all strings in list L as lines to file referenced by <filehandle> |

**BINARY FILE HANDLING:**

1. in binary file data is in unreadable format and to work on binary file we have to convert the data into readable form for read as well as write operation
2. pickling refers to the process of converting the structure to a byte stream before writing to a file.while reading the content of the file a reverse process called unpickling is used to convert the byte stream back to the original strstrstructure
3. we have to import **pickle** module for binary file handling
4. two main method of pickle modules are- dump() and load()
5. Syntax of dump():- dump(object,fileobject)
6. syntax of load():-load(fileobject)

Ques wrire a program in python to write and read structure, dictionary to the binary file

Ans import pickle

d1={'jan':31,'feb':28,'march':31,'april':30}

f=open('binfile.dat','wb+')

pickle.dump(d1,f)

d2=pickle.load(f)

print(d2)

f.close()

the above program saves a dictionary in binfile.dat and prints it on console after reading it from the file binfile.dat

**RELATIVE AND ABSOLUTE PATH**

1. the os module provides functions for working with files and directories ('os' stands for operating system). os.getcwd returns the name of the current directory

import os

cwd=os.getcwd()

print(cwd)#cwd is current working directory

 2) A string like cwd that identifies a file is called path. A relative path starts from the current directory whereas an absolute path starts from the topmost directory in file system.

3)Example of Absolute path:E:\project\myfolder\data.txt

**STANDARD FILE STREAM**

we have to import module sys for standard I/O stream

the standard stream available in python are :

1)standard input stream(sys.stdin)

2)standard output stream(sys.stdout)

3)standard error stream(sys.stderr)

**Questions**

**(1 mark questions)**

Q1what is the difference between 'w' and 'a' modes?

Q2 BINARY file is unreadable and open and close through a function only so what are the advantages of using binary file

Q3 write a statement to open a binary file name sample.dat in read mode and the file sample.dat is placed in a folder ( name school) existing in c drive

Q4 which of the following function returns a list datatype

1. d=f.read()
2. d=f.read(10)
3. d=f.readline()
4. d=f.readlines()

Q5 how many file objects would you need to manage the following situations :

1. to process four files sequentially
2. To process two sorted files into third file

Q6 when do you think text files should be preferred over binary files?

(2 mark questions)

Q1 write a single loop to display all the contens of a text file file1.txt after removing leading and trailing WHITESPACES

 Q2 what is the output of the following code fragment? explain

 out=open('output.txt','w')

out.write('hello,world!\n')

out.write('how are you')

out.close()

open('output.txt').read()

Q3 read the code given below and answer the questions

f1=open('main.txt','w')

f1.write('bye')

f1.close()

if the file contains 'GOOD' before execution, what will be the content of the file after execution of the code

Q4 observe the following code and answer the follow

f1=open("mydata","a")

\_\_\_\_\_\_#blank1

f1.close()

(i)what type of file is mydata

(ii) Fill in the blank1 with statement to write "abc" in the file "mydata"

Q5 A given text file data.txt contains :

Line1\n

\n

 line3

Line 4

\n

 line6

What would be the output of following code?

f1=open('data.txt')

L=f1.readlines()

print(L[0])

print(L[2])

print(L[5])

print(L[1])

print(L[4])

print(L[3])

Q6 In which of the following file modes the existing data of the file will not be lost?

i) rb

ii) w

iii) a+b

iv) wb+

v)r+

vi)ab

vii) w+b

viii)wb

ix)w+

Q7 what would be the data types of variables data in following statements?

i) Data=f.read( )

ii) Data=f.read(10)

iii) Data=f.readline()

iv)Data=f.readlines()

Q8suppose a file name test1.txt store alphabets in it then what is the output of the following code

f1=open("test1.txt")

size=len(f1.read())

print(f1.read(5))

(3 marks questions)

Q 1Write a user defined function in python that displays the number of lines starting with 'H'in the file para.txt

Q2 write a function countmy() in python to read the text file "DATA.TXT" and count the number of times "my" occurs in the file. For example if the file DATA.TXT contains-"This is my website.I have diaplayed my preference in the CHOICE section ".-the countmy() function should display the output as:"my occurs 2 times".

Q3 write a method in python to read lines from a text file DIARY.TXT and display those lines which start with the alphabets P.

Q4write a method in python to read lines from a text file MYNOTES.TXT and display those lines which start with alphabets 'K'

Q5write a program to display all the records in a file along with line/record number.

Q6 consider a binary file employee.dat containing details such as empno:ename:salary(seperator ':') write a python function to display details of those employees who are earning between 20000 and 30000(both values inclusive)

Q7write a program that copies a text file "source.txt" onto "target.txt" barring the lines starting with @ sign.

**Answers**

**(1 mark questions)**

Ans 1 w mode opens a file for writing only. it overwrites if file already exist but 'a mode appends the existing file from end. It does not overwrites the file

Ans 2 binary file are easier and faster than text file.binary files are also used to store binary data such as images, video files, audio files.

Ans 3 f1=open(“c:\school\sample.dat’,’r’)

Ans4 d) f.readlines()

Ans 5 a)4 b)3

Ans 6 Text file should be preferred when we have to save data in text format and security of file is not important

(2 marks questions)

Ans 1 for line in open(“file1.txt”):

 print(line.strip())

Ans 2 The output will be

Hello,world!

How are you?

The first line of code is opening the file in write mode,the next two line writes text t file .the last line opens the file and from that reference reads the file content.file() performs the same functions as open().Thus,the file(“output.txt”)will give the references to open the file on which read() is applied.

Ans 3 The file would now contains “Bye”only because when an existing file is openend in write mode .it truncates the existing data in file .

Ans 4 i)Text file

ii)f1.write(“abc”)

Ans5 Line1

 Line3

Line 6

Line 4

Ans6 ab and a+b mode

Ans 7 a)string b)string c)string d)list

Ans 8 No Output

 Explanation:the f1.read() of line 2 will read entire content of file and place the file pointer at the end of file. for f1.read(5) it will return nothing as there are no bytes to be read from EOF and,thus,print statement prints nothing.

**3 marks question**

Ans.1 def count H ():

 f = open (“para.txt” , “r” )

lines =0

l=f. readlines ()

for i in L:

if i [0]== ‘H’:

lines +=1

print (“No. of lines are: “ , lines)

Ans.2

def countmy ():

f=open (“DATA.txt” ,”r”)

count=0

x= f.read()

word =x.split ()

for i in word:

if (i == “my”):

count =count + 1

print (“my occurs” ,count, “times”)

Ans.3

def display ():

file=open(‘DIARY.txt ‘ , ‘r’)

lines= file.readline()

while line:

if line[0]== ‘p’ :

print(line)

line=file.readline ()

file.close()

Ans.4

def display ():

file=open(MYNOTES.TXT’ , ‘r’)

lines=file.readlines()

while line:

if line[0]==’K’ :

print(line)

 line=file.readline()

file.close()

Ans 5.

f=open(“result.dat” , “r”)

count=0

rec=””

while True:

rec=f.readline (0)

if rec == “ “ :

break

count=count+1

print (count,rec)

f.close()

Ans.6

def Readfile():

i=open( “Employee.dat” , “rb+”)

x=i .readline()

while(x):

I= x.split(‘:’)

if ( (float (I[2]) >=20000) and (float I[2])<=40000):

print(x)

x= i.readline()

Ans.7

def filter (oldfile, newfile):

fin =open (oldfile, “r”)

fout= open (newfile, “w”)

while True:

text =fin.readline ()

if len(text)==0:

break

if text[0]== “@”:

continue

fout.write(text)

fin.close()

fout.close()

filter(“source.txt” , “target.txt”)

**Chapter 6 :- Recursion**

**HOTS Based Questions**

**Q1. Which among the following function will be recursive function?**

1. def A() {

 B()

1. def A():

 A()

1. def A():

 B()

 def B():

 A()

1. def recure():

 resure()

**Q2 . Why the following function stops after some time.**

 def func1():

 print(“ Hello func2”)

 func2()

 def func2():

 print(“ yes func1”)

 func1()

Q3. Recursion and Iteration are both similar things i.e. anything that we can do with a loop can be done by recursion. If you, are a programmer which one will be used by you while making a program.

Q4. program to calculate pow(x,n).

Q 5. Print multiplication table of 12 using recursion.

Q6: Recursive function to return the sum of the given series.

Q7. Recursive function to find the sum of even elements from the array

# Q8.Program to Calculate e^x by Recursion

 ex = 1 + x/1! + x2/2! + x3/3! + ......

Q9. Python program to calculate length of a string using  recursion

Q. 10 Write a function “perfect()” that determines if parameter number is a perfect number. Use this function in a program that determines and prints all the perfect numbers between 1 and 1000.
[An integer number is said to be “perfect number” if its factors, including 1(but not the number itself), sum to the number. E.g., 6 is a perfect number because 6=1+2+3].

Q.11: What is tail recursion?

Q.12: What is the complexity of Binary search?

Q.13: What is the space complexity of the above recursive implementation to find the nth fibonacci number?

a) O(1)

b) O(2\*n)

c) O(n2)

d) O(2n)

Q.14: Which of the following recursive formula can be used to find the factorial of a number?

a) fact(n) = n \* fact(n)

b) fact(n) = n \* fact(n+1)

c) fact(n) = n \* fact(n-1)

d) fact(n) = n \* fact(1)

Q.15: What is the time complexity of the above recursive implementation to find the factorial of a number?

a) O(1)

b) O(n)

c) O(n2)

d) O(n3)

Q.16: Why is <\_\_init\_\_.py> module used in Python?

Q:17: Write a Python program of recursion list sum.

**RECURSION ANSWERS**

1. Ans:- (a) not a recursive function , as after def colon (:) is not present

 (b) Yes, it is a recursive function.

 (c) Yes, it a recursive function.

 (d) No, it is not a recursive function, as they are two different function.

2. Ans:- As the given output is:-

 Hello func2

 yes func1

 Hello func2

 Yes func1

 ………… and so on .

Reason :- as the function will go on all the memory will be used up, and the system will eventually show Run time error.

3. Ans:- As a programmer I will prefer to use both recursion and iteration depending on the need,

 As, iteration is used by a programmer

* for most recursive events
* iteration does not involves the use of additional cost of RAM as compared to using recursion

 Recursion is important as it makes the program shorter, and more simplified.

4. **Solution:**

def power(x, y):

    if (y == 0): return 1

    elif (int(y % 2) == 0):

        return (power(x, int(y / 2)) \* power(x, int(y / 2)))

    else:

        return (x \* power(x, int(y / 2)) \* power(x, int(y / 2)))

x = 2; y = 3

print(power(x, y))

5. **Solution**

def table(n,i):

 print n\*i

 i=i+1

 if i<=10:

 table(n,i)

table(12,1)

6. **Solution**

def sum(n):

    if n == 1:

        return 1

    else:

        # Recursive call

        return pow(n, n) + sum(n - 1)

n = 2

print(sum(n))

7. **Solution**

def SumOfEven(arr, i, sum):

    if (i < 0):

        print(sum);

        return;

    if ((arr[i]) % 2 == 0):

        sum += (arr[i]);

        SumOfEven(arr, i - 1, sum);

if \_\_name\_\_ == '\_\_main\_\_':

    arr = [ 1, 2, 3, 4, 5, 6, 7, 8 ];

    n = len(arr);

    sum = 0;

    SumOfEven(arr, n - 1, sum);

8. **Solution:**

p = 1.0

f = 1.0

def e(x, n) :

      global p, f

    if (n == 0) :

        return 1

    r = e(x, n - 1)

    p = p \* x

    f = f \* n

    return (r + p / f)

x = 4

n = 15

print(e(x, n))

9. **Solution:**

str = "GeeksforGeeks"

def recLen(i) :

    global str

    if (i == len(str)) :

        return 0

    else :

        return 1 + recLen(i + 1)

print (recLen(0))

10. **Solution:**

def perfect(n):

 sum = 0

 for i in range(1,n):

 if n%i == 0:

 sum = sum + i

 if sum == n:

 return True

 else:

 return False

for i in range(1,1001):

 if perfect(i):

 print i

11: A function where the recursive call is the last thing executed by the function.

12: log(n)

13. a

14. c

15. b

16: The <\_\_init\_\_.py> module can help in fulfilling following objectives.

It makes Python interpret directories as containing packages by excluding the ones with a common name such as string.

It grants a programmer with the control to decide which directory is a package and which is not.

However, the <\_\_init\_\_.py> can also be an empty file. It can then help in executing the initialization code for a package or setting the <\_\_all\_\_> variable.

17. def recursive\_list\_sum(data\_list):

 total = 0

 for element in data\_list:

 if type(element) == type([]):

 total = total + recursive\_list\_sum(element)

 else:

 total = total + element

 return total

print( recursive\_list\_sum([1, 2, [3,4],[5,6]]))

**CHAPTER 7 : Idea of Algorithmic Efficiency**

1. What is Algorithim?
2. What are the factors on which performance of a program depends?
3. What are the Internal and External factors?
4. What is Computational Complexity?
5. Write a program to Calculate sum of n natural numbers

with time taken.

1. What is the time complexity of following algorithims?

 i)Binary Search ii) linear Search

**ANSWERS : IDEA OF ALGORITHMIC EFFICIENCY**

**Answers**

Answer 1 :

An algorithm is a step-by-step method of solving a problem.

Answer 2:

Performance of an algorithm depends on many internal and external factors

Answer3:

Internal factors

 (a) Time required to run

(b) Space required to run

External factors:

(a) Size of the input to the program

(b) Speed of the computer

(c) Quality of the compiler

Answer4:

Computation means to solve problemsusing an algorithm and Complexity involves the study of factors to determine how much resource is sufficiently necessary for this algorithm to

run efficiently .

Answer5:

import time

def natural\_sum(n):

start=time.time()

sum=0

for x in range(1,n+1):

 sum=sum+x

 end=time.time()

 time\_taken=end-start

print("Sum is",sum)

print("Time Taken:",time\_taken)

natural\_sum(100000)

import time

start=time.time()

def natural\_sum(n):

 return(n\*(n+1)/2)

end=time.time()

print(natural\_sum(100000))

time\_taken=end-start

print("Time Taken:",time\_taken)

Answer6:

def LSearch(List,x):

for i in List:

 if i==x:

 return True

return False

List=[10,20,30,40,50,60]

print(LSearch(List,30))

print(LSearch(List,35))

print(LSearch(List,40))

**Binary Search**

def binsearch(ar,key,low,high):

 if low>high:

 return -999 #Base Case

 mid=int((low+high)/2)

 if key==ar[mid]:

 return mid #Base Case

 elif key<ar[mid]:

 high=mid-1

 return binsearch(ar,key,low,high)

 else:

 low=mid+1

 return binsearch(ar,key,low,high)

ary=[13,15,17,19,21,23,34,36,45]

item=int(input("Enter no. to search:"))

res=binsearch(ary,item,0,len(ary)-1)

if res>=0:

 print(item,"Found at index",res)

else:

 print("Number not found”)

If we see both algorithms then we come to know that binary search is better because the number of operations in this algorithm are very less. It searches item very fast and in very less operations.

**Chapter 8 : Data Visualization Using Pyplot**

1. What is Data Visualization?
2. Write the syntax to import Pyplot library?
3. Name some commonly used chart types?
4. Name the functions that are used to create line chart
5. Name the functions that are used to create Bar chart
6. Name the functions that are used to create Pi chart
7. Write a Python program to draw a line with suitable label in the x axis, y axis and a title.
8. Write a Python program to draw a line using given axis values with suitable label in the x axis , y axis and a title.
9. Write a Python program to plot two or more lines and set the line markers.
10. Write a Python Program to plot line chart for values x=[1,2,3,4,5]y=[65,45,76,26,80]

11.Write a Python Program to Plot a line chart for equation Y=2X+5 where x=[-5,-4,………4,5]

12. Write a Python Program to Plot a line chart for a particular colour for equation Y=sin(X) where x=[0,0.1,0.2…….5,5.1,…………10]

13 To add legends, titles and labels to a line plot with multiple lines.

14 Write a Python Program to Plot a bar chart for values cities and population.

15 Write a Python Program to plot a bar chart with width.

16 Write a Python Program to plot a bar chart horizontally

 17. Write a Python Program to plot a pie chart for the popular languages among students.

 ('Python', 'C++', 'Java', 'Perl', 'Scala', 'Lisp')

**ANSWERS : Data Visualization Using Pyplot**

Answer 1:

General term that describe any effort to help people understand significance of data by placing it in visual context

2: import matplotlib.pyplot

3: Line chart,Bar chart ,Pi chart

4: matplotlib.pyplot.plot()

5: matplotlib.pyplot.bar()

6: matplotlib.pyplot.pie()

7:

import matplotlib.pyplot as plt

X =range(1,50)

Y =[value \*3for value in X]

print("Values of X:")

print(\*range(1,50))

print("Values of Y (thrice of X):")

print(Y)

plt.plot(X, Y)

plt.xlabel('x - axis')

plt.ylabel('y - axis')

plt.title('Draw a line.')

plt.show()

8:

import matplotlib.pyplot as plt

x =[1,2,3]

y =[2,4,1]

plt.plot(x, y)

plt.xlabel('x - axis')

plt.ylabel('y - axis')

plt.title('Sample graph!')

plt.show()

9.

import matplotlib.pyplot as plt

x =[1,4,5,6,7]

y =[2,6,3,6,3]

plt.plot(x, y, color='red', linestyle='dashdot', linewidth =3,

marker='o', markerfacecolor='blue', markersize=12)

plt.ylim(1,8)

plt.xlim(1,8)

plt.xlabel('x - axis')

plt.ylabel('y - axis')

plt.title('Display marker')

plt.show()

10:

import matplotlib.pyplot as plt

 import numpy as np x=[1,2,3,4,5] y=[65,45,76,26,80]

plt.plot(x,y) plt.xlabel("X axis")

plt.ylabel("Y axis ")

plt.title("Graph for x=[1,2,3,4,5] y=[65,45,76,26,80]")

plt.show()

11:

import matplotlib.pyplot as plt

import numpy as np

 x=np.arange(-5,6,1) y=2\*x+5

plt.plot(x,y)

 plt.xlabel("X axis")

 plt.ylabel("Y axis ")

 plt.title("Graph for an Algebraic Y=2\*X+5")

 plt.show()

12:

import matplotlib.pyplot as plt

import numpy as np

 x=np.arange(0,10,0.1)

 y=np.sin(x)

plt.plot(x,y)

plt.xlabel("X")

plt.ylabel("Y")

 plt.title("Graph for Y=sin(X)")

plt.show()

13:

import matplotlib.pyplot as plt

 x=[1,2,3] y=[5,7,4]

 plt.plot(x,y,label='First Line',color='red')

 x2=[1,2,3]

y2=[10,11,14]

plt.plot(x2,y2,label='Second Line',color='black')

plt.xlabel('Plot Number')

 plt.ylabel('Variables')

 plt.title('New Graph')

plt.legend()

plt.show()

14:

import matplotlib.pyplot as plt

 import numpy as np

city=['Delhi','Mumbai','Chennai','Hyderabad‘]

p=[1500,2000,1800,1200]

 plt.bar(city,p)

plt.xlabel("City")

 plt.ylabel("Population in Lacs ")

 plt.title("Population of different cities")

plt.show()

15:

import matplotlib.pyplot as plt

import numpy as np

 y\_axis=[20,50,30]

 x\_axis=range(len(y\_axis))

plt.bar(x\_axis,y\_axis,width=.5,color='orange')

plt.show()

16:

import matplotlib.pyplot as plt

import numpy as np

 ob=('Python','C++','Java','Perl','Scala','Lisp')

y\_pos=np.arange(len(ob))

performance=[10,8,6,4,2,1]

plt.barh(y\_pos,performance,align='center',color='r')

 plt.yticks(y\_pos,ob)

 plt.xlabel("Usage")

plt.title('P.L.Usage')

plt.show()

17:

import matplotlib.pyplot as plt

 labels='Python','C++','Ruby','java'

sizes=[215,130,245,210]

colors=['gold', 'yellowgreen','lightcoral','lightskyblue']

 explode=(0.1,0,0,0)

plt.pie(sizes,explode=explode,labels=labels,colors=colo rs, shadow=True,startangle=140)

 plt.axis('equal')

 plt.show()

**CHAPTER 9 : DATA STRUCTURE-I (LINEAR LIST)**

Definition: The logical or mathematical model of a particular organization of data is called data structure. It is a way of storing, accessing, manipulating data.

 **TYPES OF DATA STRUCTURE:**

There are two types of data structure:

1. Linear data structure: It is simple data structure. The elements in this data structure creates a sequence. Example: Array, linked list, stack, queue.

2. Non-Linear data structure: The data is not in sequential form. These are multilevel data structures. Example: Tree, graph.

 **OPERATION ON DATA STRUCTURE:**

There are various types of operations can be performed with data structure:

1. Traversing: Accessing each record exactly once.

2. Insertion: Adding a new element to the structure.

3. Deletion: Removing element from the structure.

4. Searching: Search the element in a structure.

5. Sorting: Arrange the elements in ascending and descending order.

6. Merging: Joining two data structures of same type. (not covered in syllabus)

 **LISTS IN DATA STRUCTURE:**

a. Traversing 1-D array (List):

L=[10,20,30,40,50]

n=len(L)

for i in range(n): print(L[i])

Output:

10

20

30

40

50

b. Inserting Element in a list: In this case, enter the element at any position using insert( ) function or add the element in the last of the array using append( ) function.

Example:

L=[15,8,25,45,13,19]

L.insert(3, 88) # insert element at the index 3

print(L)

Output:

[15, 8, 25, 88, 45, 13, 19]

c. Deletion of an element from a List: To delete an element from a list we can use remove( ) or pop( ) method.

Example:

L=[10,15,35,12,38,74,12]

print("List Before deletion of element: ", L)

val=int(input("Enter the element that you want to delete: "))

 L.remove(val)

print("After deletion the element", val,"the list is: ", L)

OUTPUT:

List Before deletion of element: [10, 15, 35, 12, 38, 74, 12] Enter the element that you want to delete: 12

After deletion the element 12 the list is: [10, 15, 35, 38, 74, 12]

d. Searching in a List:

There are two types of searching techniques we can use to search an element in a list. These are:

(i) Linear Search

(ii) Binary Search

(i) Linear Search: It is a simple searching technique.

Program:

L=eval(input("Enter the elements: ")) n=len(L)

item=eval(input("Enter the element that you want to search : ")) for i in range(n):

if L[i]==item:

print("Element found at the position :", i+1)

break

else:

print("Element not Found")

Output:

Enter the elements: 56,78,98,23,11,77,44,23,65 Enter the element that you want to search : 23 Element found at the position : 4

(ii) Binary Search:

Program:

def BinarySearch(LIST,n,item): LB=0

UB=n-1

while LB<=UB:

 mid=int((LB+UB)/2)

 if item<LIST[mid]:

 UB=mid-1

 elif item>LIST[mid]:

 LB=mid+1 else:

 return mid

 else:

 return -1

L=eval(input("Enter the elements in sorted order: "))

size=len(L)

element=int(input("Enter the element that you want to search :")) found=BinarySearch(L,size,element)

if found>=0:

 print(element, "Found at the position : ",found+1)

else:

 print("Element not present in the list")

OUTPUT:

Enter the elements in sorted order: [12,23,31,48,51,61,74,85] Enter the element that you want to search : 61

61 Found at the position : 6

**Linear Search Vs Binary Search:**

Linear Search Binary Search

Access of elements sequentially. Access of elements randomly.

Elements may or may not be in sorted order. Elements must be in sorted order i.e. ascending or descending order

Takes more time to search an element. Takes less time to search an element.

easy tricky

Efficient for small array. Efficient for larger array

e. Sorting: To arrange the elements in ascending or descending order. There are many sorting techniques. Here we shall discuss two sorting techniques:

(i) Bubble sort

(ii) Insertion sort

(i) BUBBLE SORT: Bubble sort is a simple sorting algorithm. It is based on comparisons, in which each element is compared to its adjacent element and the elements are swapped if they are not in proper order.

PROGRAM:

L=eval(input("Enter the elements:"))

n=len(L)

for p in range(0,n-1):

 for i in range(0,n-1):

 if L[i]>L[i+1]:

 L[i], L[i+1] = L[i+1],L[i]

print("The sorted list is : ", L)

OUTPUT:

Enter the elements:[60, 24, 8, 90, 45, 87, 12, 77]

The sorted list is : [8, 12, 24, 45, 60, 77, 87, 90]

(ii) INSERTION SORT: Sorts the elements by shifting them one by one and inserting the element at right position.

PROGRAM:

L=eval(input("Enter the elements: "))

 n=len(L)

for j in range(1,n):

 temp=L[j]

 prev=j-1

 while prev>=0 and L[prev]>temp: # comparison the elements L[prev+1]=L[prev]

 # shift the element forward prev=prev-1

 L[prev+1]=temp #inserting the element at proper position

print("The sorted list is :",L)

OUTPUT:

Enter the elements: [45, 11, 78, 2, 56, 34, 90, 19]

The sorted list is : [2, 11, 19, 34, 45, 56, 78, 90]

**CHAPTER 10 : DATA STRUCTURE-II (STACK AND QUEUE)**

STACK IN PYTHON:

 INTRODUCTION:

• Stack is a linear data structure.

• Stack is a list of elements in which an element may be inserted or deleted only at one end, called the TOP of the stack.

• It follows the principle Last In First Out (LIFO).

• There are two basic operations associated with stack:

o Push : Insert the element in stack

o Pop : Delete the element from stack

QUESTIONS ON DATA STRUCTURE

1. Write a program for linear search in a list.

2. Write a program for bubble sort.

 3. Write InsertQ(Customer) and DeleteQ(Customer) methods/functions in Python to add a new Customer and delete a Customer from a list of Customer names, considering them to act as insert and delete operations of the Queue

4. Write PushOn(Book) and Pop(Book) methods/functions in Python to add a new Book and delete a Book from a list of Book titles, considering them to act as push and pop operations of the Stack data structure.

Answer

1. Write a program for linear search in a list.

L=eval(input("Enter the elements: "))

n=len(L)

item=eval(input("Enter the element that you want to search : "))

for i in range(n):

 if L[i]==item:

 print("Element found at the position :", i+1)

 break

else:

print("Element not Found")

2. Write a program for bubble sort.

L=eval(input("Enter the elements:"))

 n=len(L)

for p in range(0,n-1):

 for i in range(0,n-1):

 if L[i]>L[i+1]:

 t=L[i]

 L[i]=L[i+1]

 L[i+1]=t

 print("The sorted list is : ", L)

def InsertQ(queue):

 a=input(“Enter customer name :”)

 queue.append(a)

def DeleteQ(queue):

 if (queue==[]):

 print (“Queue is empty…..”)

 else:

 print(“Deleted element is”, queue[0])

 del queue[0]

1. Def PushOn(Book):

 a=input(“enter book title :”)

 Book.append(a)

Def Pop(Book):

 If (Book==[]):

 print(“Stack empty”)

 Else:

 print(“Deleted element :”)

 Book.pop()

 OR

class Stack:

 Book=[]

 Def PushOn(self):

 a=input(“enter book title:”)

 Stack.Book.append(a)

 Def Pop(self):

 If (Stack.Book==[]):

 Print(“Stack empty”)

 Else:

 Print(“Deleted element :”,Stack.Book.pop())

**CHAPTER 11 - Computer Network-I**

Q 1.What are the components required for networking ?

2. What is spyware?

3. What is Ethernet?

4.Write two advantage and disadvantage of networks.

5.What is ARPAnet ?

6.What is NSFnet ?

7.What is communication channel?

8.Define baud, bps and Bps. How are these interlinked?

9.What do you understand by InterSpace?

10.Name two switching circuits and explain any one

11.What is communication channel? Name the basic types of communication channels available

12. What are the factors that must be considered before making a choice for the topology?

13. What are the similarities and differences between bus and tree topologies?

14. What are the limitations of star topology?

15. When do you think, ring topology becomes the best choice for a network?

16. Write the two advantages and two disadvantages of Bus Topology in network.

17. What is modem?

18. Define the following:

 (i)RJ-45 (ii)Ethernet (iii) Ethernet card (iv)hub (v)Switch

**Answers for Computer Network-1**

Ans 1. Routers. Routers are devices on the network which is responsible for forwarding data from one device to another. ...

Switches.

Network hubs.

Wireless access points.

Network Cables.

Network Server.

Network Interface Cards (NIC)

Ans 2. Spyware is software that is installed on a computing device without the end user's knowledge. Any software can be classified as spyware if it is downloaded without the user's authorization. Spyware is controversial because even when it is installed for relatively innocuous reasons, it can violate the end user's privacy and has the potential to be abused.

Ans 3. Ethernet is the traditional technology for connecting wired local area networks (LANs), enabling devices to communicate with each other via a protocol -- a set of rules or common network language.

As a data-link layer protocol in the TCP/IP stack, Ethernet describes how network devices can format and transmit data packets so other devices on the same local or campus area network segment can recognize, receive and process them. An Ethernet cable is the physical, encased wiring over which the data travels

Ans 4. Advantage: • We can share resources such as printers and scanners. • Can share data and access file from any computer.

Disadvantage: • Server faults stop applications from being available. • Network faults can cause loss of data.

Ans 5. ARPAnet (Advanced Research Project Agency Network is a project sponsored by U. S. Department of Defense.

Ans 6. NSFnet was developed by the National Science Foundation which was high capacity network and strictly used for academic and engineering research.

Ans 7. Name the basic types of communication channels available. Communication channel mean the connecting cables that link various workstations. Following are three basic types of communication channels available: a) Twisted-Pair Cables b) Coaxial Cables c) Fiber-optic Cables

Ans 8. Baud is a unit of measurement for the information carrying capacity of a communication channel. bps- bits per second. It refers to a thousand bits transmitted per second. Bps- Bytes per second. It refers to a thousand bytes transmitted per second. All these terms are measurement

Ans 9. Interspace is a client/server software program that allows multiple users to communicate online with real-time audio, video and text chat I dynamic 3D environments.

Ans10. The two switching circuits are • Circuit Switching • Message Switching Circuit Switching - In this technique, first the complete physical connection between two computers is established and then data are transmitted from the source computer to the destination computer.

Ans 11. Communication channel mean the connecting cables that link various workstations. Following are three basic types of communication channels available: a) Twisted-Pair Cables b) Coaxial Cables c) Fiber-optic Cables.

Ans 12. There are number of factors to consider in before making a choice for the topology, the most important of which are as following : (a) Cost. (b) Flexibility (c) Reliability .

Ans.13. Similarities : In both Bus and Tree topologies transmission can be done in both the directions, and can be received by all other stations. In both cases, there is no need to remove packets from the medium.

 Differences : Bus topology is slower as compared to tree topology of network. Tree topology is expensive as compared to Bus Topology

Ans 14.. Requires more cable length than a linear topology. If the hub, switch, or concentrator fails, nodes attached are disabled. More expensive than linear bus topologies because of the cost of the hubs, etc.

Ans 15. Ring topology becomes the best choice for a network when, short amount of cable is required. No wiring closet space requires.

Ans 16. Advantage: Easy to connect a computer or peripheral to a linear bus. Requires less cable length than a star topology.

Disadvantage : Slower as compared to tree and star topologies of network. Breakage of wire at any point disturbs the entire

Ans 17. Name two categories of modems. Modem is a device that converts digital communication signals to analog communication digital signals and vice versa. Following are the two categories of modems. 1) Internal Modem (Fixed with computer) 2) External Modem (Connect externally to computer).

Ans 18. (i) RJ-45: RJ45 is a standard type of connector for network cables and networks. It is an 8-pin connector usually used with Ethernet cables. (ii)Ethernet: Ethernet is a LAN architecture developed by Xerox Corp along with DEC and Intel. It uses a Bus or Star topology and supports data transfer rates of up to 10 Mbps. (iii)Ethernet card: The computers parts of Ethernet are connected through a special card called Ethernet card. It contains connections for either coaxial or twisted pair cables. (iv)Hub: In computer networking, a hub is a small, simple, low cost device that joins multiple computers together. (v)Switch: A Switch is a small hardware device that joins multiple computers together within one local area network (LAN).

**CHAPTER 12 : Computer Network-II**

1.What is protocol? Name some commonly used protocols.

2.What is TCP/IP? What is HTTP?

3. Define GSM, CDMA, and WLL

4..Define the following: (i)3G (ii)EDGE (iii)SMS (iv)TDMA

5. Define web browser and web server.

6.INDIAN PUBLIC SCHOOL in Darjeeling is setting up the network between its different wings. There are 4 wings named as SENIOR(S), JUNIOR (J), ADMIN (A) and HOSTEL (H).

Distance between various Wings

Wing A to Wing S 100 m

Wing A to Wing J 200 m

Wing A to Wing H 400 m

Wing S to Wing J 300 m
Wing S to Wing H 100 m

 Wing J to Wing H 450 m

Number of Computers

Wing A 10

Wing S 200

 Wing J 100

Wing H 50

1. Suggest a suitable Topology for networking the computer of all wings.
2. Name the wing where the server is to be installed. Justify your answer
3. Suggest the placement of Hub/Switch in the network.
4. Mention the economic technology to provide internet accessibility to all wings.

7.Expand the following abbreviations: (i) HTTP (ii) ARPANET

8.What is CSMA/CA?

9.How does CSMA/CA technique works?

10.What are basic methods of checking errors in the data being transmitted over networks?

11.What types of errors may occur in the data transmitted over networks.

12.What do you understand by parity checking?

13.What are the steps followed in checksum generator?

14.What are checksums?

15.What is ACK(Acknowledgement) signal?

16. What is routing?

**Answers for Computer Network- II**

1.A protocol means the rules that are applicable for a network or we can say that the common set of rules used for communication in network. Different types of protocols are : (i) HTTP : Hyper Text Transfer Protocol (ii) FTP : File Transfer Protocol (iii) SLIP : Serial Line Internet Protocol (iv) PPP : Point to Point Protocol (v) TCP/IP : Transmission Control Protocol/ Internet Protocol (vi) NTP : Network Time Protocol (vii) SMTP : Simple Mail Transfer Protocol (viii) POP : Post Office Protocol (ix) IMAP : Internet Mail Access Protocol

2. TCP/IP (Transmission Control Protocol / Internet Protocol): A protocol for communication between computers used as a standard for transmitting data over networks and is the basis for standard Internet protocols. HTTP(Hyper Text Transfer Protocol) : An application level protocol with the lightness and speed necessary for distributed, shared, hypermedia information systems

3.GSM: GSM (Global system for mobile communication) is a wide area wireless communications System that uses digital radio transmission to provide voice data and multimedia communication services. A GSM system coordinates the communication between mobile telephones, base stations, and switching systems. CDMA: CDMA (Code Division Multiple Access) is a digital wireless telephony transmission technique, which allows multiple frequencies to be used simultaneously – Spread Spectrum. WLL: WLL (Wireless in Local Loop) is a system that connects subscriber to the public switched telephone network (PSTN) using radio signal as alternate for other connecting media.

4. (i) 3G: 3G (Third Generation) mobile communication technology is a broadband, packet-based transmission of text, digitized voice, video and multimedia at data rates up to 2 mbps, offering a consistent set of services to mobile computer and phone users no matter where they are located in the world. (ii)EDGE: EDGE (Enhanced Data rates for Global Evolution) is radio based high-speed of mobile data standard, developed specifically to meet the bandwidth needs of 3G. (iii)SMS: SMS (Short Message Service) is the transmission of short text messages to and from a mobile phone, fax machine and IP address. (iv)TDMA: TDMA (Time Division Multiple Access) is a technology for delivering digital wireless service using time- division multiplexing (TDM).

5. Web Browser: A Web Browser is software which used for displaying the content on web page(s). It is used by client to view web sites. Example of Web browser – Google Chrome, Fire Fox, Internet Explorer, Safari, Opera, etc. Web Server: A Web Server is software which fulfills the request(s) done by web browser. Web server have different ports to handle different request from web browser like generally FTP request is handle at Port 110 and HTTP request is handle at Port 80. Example of Web server are – Apache, IIS

6. (i) Star or Bus or any other valid topology or diagram.

(ii) Wing S, because maximum number of computer are located at Wing S.

(iii) Hub/Switch in all the wings.

 (iv)Coaxial cable/Modem/LAN/TCP-IP/Dialup/DSL/Leased Lines or any other valid technology.

7. (i) HTTP - Hyper Text Transfer Protocol (ii) ARPANET - Advanced Research Project Agency Network

8. Carrier Sense Multiple Access/Collision Avoidance (CSMA/CA) is a media access protocol that is related to CSMA/CD and is also used on multiple access networks

9. Carrier Sense Multiple Access/Collision Avoidance (CSMA/CA) is a media access protocol that is used on multiple access wireless networks. With CSMA/CA, a device listens for an opportunity to transmit its data, i.e, CARRIER SENSE If the carrier is free,the sending device does not immediately transmit data. Rather, it first transmits a signal notifying other devices (i.e., a warning packet) that it is transmitting for so much time before actually sending the data. The other device refrains from transmitting data for the specified time limit. This means data packets will never collide.

 10. There are many methods of checking or detecting simplest ones are: (i) Single dimensional parity checking (ii) Two dimensional parity checking (ii) Checksums

11. The errors that may occur in the data transmitted over networks, can be one or more of following types: (i) Single-bit error. This type of error occurs if only one bit of the transmitted data got changed from 1 to 0 or from 0 to 1.

(ii) Multiple-bit error. This type of error occurs if two or more nonconsecutive bits in data got changed from 0 to 1 or from 1 to 0.

(iii) Burst Error. This type of error occurs if two or more consecutive bits in data got changed from 0 to 1 or from 1 to 0

12. Parity checking is a method of error detection that can checkk1 or 2 bit errors (but not all dr these) In parity checks, a parity bit is added to the end of a string of binary code to indicate whether the number of bits in the string with the value 1 is even or odd.

13. The sender, which is the checksum generator, follows these steps:

(a) The units are divided into k sections each of n bits , taking 1's complement to get the sum.

(b) All sections are added together

(c) The sum is complemented and become the checksum.

(d) The checksum is sent with the data.

14. Checksum is an error detection technique used for checking errors in the received data In this technique, at the transmitter's end, as the device transmits data, it takes the sum of all of the data elements it is transmitting to create an aggregate sum. This sum is called the datasum. The overflow carries generated by the additions are added back into the datasum. The transmitting device then sends a form of this datasum appended to the end of the block. This new form of the datasum is called the checksum. At the receiver end, as the data elements are received, they are added a second time in order to recreate the datasum. Once all of the data elements have been received, the receiving device compares its calculated datasum with the checksum sent by the transmitting device. If both these match, the data is considered error-free and accepted otherwise rejected.

15. The acknowledgement signal or the ACK signal is a control code, which is sent by the receiving computer to indicate that the data has been received without error and that the next part of the transmission may be sent.

16.Routing is the process of selecting paths to move information across networks When a data packet reaches a router, the router selects the best route to the destination network from js routing table and forwards the data packet to the neighbouring router as per the selected best path. This way each router keeps passing the data packet(s) to its neighbouring router on best route the destination and finally the data packet reaches its destination.

**CHAPTER 13 & 14 : MYSQL REVISION TOUR AND MORE ON SQL**

**Q1. Define the terms:**

1. Database Abstraction
2. Data inconsistency
3. Conceptual level of database implementation/abstraction
4. Primary Key
5. Candidate Key
6. Relational Algebra
7. Domain

**Q2. Answer the following questions :**

1. Differentiate between DDL and DML?
2. What is a constraint?
3. What are single row functions ?
4. Compare CHAR and VARCHAR data types.
5. What are the differences between DELETE and DROP commands of SQL?
6. What do you understand by MySQL Client?
7. Differentiate between WHERE and HAVING clause.
8. The Pincode column of table 'Post' is given below-

|  |
| --- |
| 100001 |
| 1200012 |
| 1300013 |
| 1600017 |
| 1800018 |

**9. Find the output**

 SELECT Pincode from Post where Pincode LIKE " %1" ;

SELECT Pincode from Post where Pincode LIKE " 0%" ;

10. A table "Animals" in a database has 3 columns and 10 records. What is the degree and cardinality of this table?

11. What is the difference between commit and rollback command.

12. Which keyword is used to remove redundant data from a relation.

13. What is difference between curdate() and date() functions?

14. Write SQL query to create a table ‘Inventory’ with the following structure:

|  |  |  |
| --- | --- | --- |
| Field | Type | Constraint |
| MaterialId | Integer | Primary key |
| Material | Varchar(50) | NOT NULL |
| Category | Char | DEFAULT E |
| DatePurchase | Date |  |

**Q3. Consider the following tables GAMES and PLAYER. Write SQL commands for the statements**

1. **to (iv) and give outputs for SQL queries (v) to (viii). Table:** **GAMES**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| GCode | GameName | Number | PrizeMoney | ScheduleDate |
| 101 | Carom Board | 2 | 5000 | 23-Jan-2004 |
| 102 | Badminton | 2 | 12000 | 12-Dec-2003 |
| 103 | Table Tennis | 4 | 8000 | 14-Feb-2004 |
| 105 | Chess | 2 | 9000 | 01-Jan-2004 |
| 108 | Lawn Tennis | 4 | 25000 | 19-Mar-2004 |
|  | **Table: PLAYER** |
| PCode | Name | Gcode |
| 1 | Nabi Ahmad | 101 |
| 2 | Ravi Sahai | 108 |
| 3 | Jatin | 101 |
| 4 | Nazneen | 103 |

1. To display the name of all Games with their Gcodes.
2. To display details of those games which are having PrizeMoney more than 7000.
3. To display the content of the GAMES table in ascending order of ScheduleDate.
4. To display sum of PrizeMoney for each of the Number of participation groupings (as shown in column Number 2 or 4)
5. SELECT COUNT(DISTINCT Number) FROM GAMES;
6. SELECT MAX(ScheduleDate),MIN(ScheduleDate) FROM GAMES;
7. SELECT SUM(PrizeMoney) FROM GAMES;
8. SELECT DISTINCT Gcode FROM PLAYER;

**Q4. Consider the following tables FACULTY and COURSES. Write SQL commands for the statements**

 **(i) to (iv) and give outputs for SQL queries (v) to (vi).**

 FACULTY

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| F\_ID | Fname | Lname | Hire\_date | Salary |
| 102 | Amit | Mishra | 12-10-1998 | 12000 |
| 103 | Nitin | Vyas | 24-12-1994 | 8000 |
| 104 | Rakshit | Soni | 18-5-2001 | 14000 |
| 105 | Rashmi | Malhotra | 11-9-2004 | 11000 |
| 106 | Sulekha | Srivastava | 5-6-2006 | 10000 |

COURSES

|  |  |  |  |
| --- | --- | --- | --- |
| C\_ID | F\_ID | Cname | Fees |
| C21 | 102 | Grid Computing | 40000 |
| C22 | 106 | System Design | 16000 |
| C23 | 104 | Computer Security | 8000 |
| C24 | 106 | Human Biology | 15000 |
| C25 | 102 | Computer Network | 20000 |
| C26 | 105 | Visual Basic | 6000 |

1. To display details of those Faculties whose salary is greater than 12000.
2. To display the details of courses whose fees is in the range of 15000 to 50000 (both values included).
3. To increase the fees of all courses by 500 of “System Design” Course.

iv) To display details of those courses which are taught by ‘Sulekha’ in descending order of courses?

1. Select COUNT(DISTINCT F\_ID) from COURSES;
2. Select Fname,Cname from FACULTY,COURSE where COURSE.F\_ID=FACULTY.F.ID;

**Q-5 Write SQL Command for (a) to (e) and output of (f)**

TABLE : GRADUATE

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S.NO | NAME | STIPEND | SUBJECT | AVERAGE | DIV |
| 1 | KARAN | 400 | PHYSICS | 68 | I |
| 2 | DIWAKAR | 450 | COMP Sc | 68 | I |
| 3 | DIVYA | 300 | CHEMISTRY | 62 | I |
| 4 | REKHA | 350 | PHYSICS | 63 | I |
| 5 | ARJUN | 500 | MATHS | 70 | I |
| 6 | SABINA | 400 | CHEMISTRY | 55 | II |
| 7 | JOHN | 250 | PHYSICS | 64 | I |
| 8 | ROBERT | 450 | MATHS | 68 | I |
| 9 | RUBINA | 500 | COMP Sc | 62 | I |
| 10 | VIKAS | 400 | MATHS | 57 | II |

1. List the names of those students who have obtained DIV I sorted by NAME.
2. Display a report, listing NAME, STIPEND, SUBJECT and amount of stipend received in a year assuming that the STIPEND is paid every month.
3. To count the number of students who are either PHYSICS or COMPUTER SC graduates.
4. To insert a new row in the GRADUATE table: 11,”KAJOL”, 300, “computer sc”, 75, 1
5. Add a new column GRADE of character type.
6. Give the output of following sql statement based on table GRADUATE:
7. Select MIN(AVERAGE) from GRADUATE where SUBJECT=”PHYSICS”;
8. Select SUM(STIPEND) from GRADUATE WHERE div=2;
9. Select AVG(STIPEND) from GRADUATE where AVERAGE>=65;
10. Select COUNT(distinct SUBJECT) from GRADUATE;

**Q-6 Consider the following tables Sender and Recipient. Write SQL commands for the statements (i) to (iv) and give the outputs for SQL queries (v) to (viii).**

Sender

|  |  |  |  |
| --- | --- | --- | --- |
| SenderID | SenderName | SenderAddress | Sendercity |
| ND01 | R Jain | 2, ABC Appls | New Delhi |
| MU02 | H Sinha | 12 Newtown | Mumbai |
| MU15 | S Jha | 27/A, Park Street | Mumbai |
| ND50 | T Prasad | 122-K,SDA | New Delhi |

**Recipients**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| RecID | SenderID | RecName | RecAddress | recCity |
| KO05 | ND01 | R Bajpayee | 5, Central Avenue | Kolkata |
| ND08 | MU02 | S Mahajan | 116, A-Vihar | New Delhi |
| MU19 | ND01 | H Singh | 2A, Andheri East | Mumbai |
| MU32 | MU15 | P K Swamy | B5, C S Terminals | Mumbai |
| ND48 | ND50 | S Tripathi | 13, BI D Mayur Vihar | New delhi |

* 1. To display the names of all Senders from Mumbai
	2. To display the RecIC, Sendername, SenderAddress, RecName, RecAddress for every Recipient
	3. To display Recipient details in ascending order of RecName
	4. To display number of Recipients from each city
	5. SELECT DISTINCT SenderCity from Sender;
	6. SELECT A.SenderName, B.RecName From Sender A, Recipient B

Where A.SenderID = B.SenderID AND B.RecCity =’Mumbai’;

* 1. SELECT RecName, RecAddress From Recipient

Where RecCity NOT IN (‘Mumbai’, ‘Kolkata’) ;

* 1. SELECT RecID, RecName FROM Recipent

Where SenderID=’MU02’ or SenderID=’ND50’;

Q-7 Write SQL queries for (i) to (iv) and find outputs for SQL queries (v) to (viii), which are based

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| on the tables. |  |  |  |  |  |  |  | 6 |
|  |  |  |  | **Table : VEHICLE** |  |  |  |  |  |
|  |  | CODE | VTYPE |  | PERKM |  |  |  |  |  |
|  |  | 101 |  | VOLVO BUS |  | 160 |  |  |  |  |  |
|  |  | 102 |  | AC DELUXE BUS |  | 150 |  |  |  |  |  |
|  |  | 103 |  | ORDINARY BUS |  | 90 |  |  |  |  |  |
|  |  | 105 |  | SUV |  | 40 |  |  |  |  |  |
|  |  | 104 |  | CAR |  | 20 |  |  |  |  |  |
| Note : PERKM is Freight Charges per kilometer , VTYPE is Vehicle Type |  |  |
|  |  |  |  |  | **Table : TRAVEL** |  |  |  |  |  |
|  | NO | NAME | TDATE | KM |  | CODE | NOP |  |
|  | 101 | Janish Kin | 2015-11-13 | 200 |  | 101 | 32 |  |
|  | 103 | Vedika Sahai | 2016-04-21 | 100 |  | 103 | 45 |  |
|  | 105 | Tarun Ram | 2016-03-23 | 350 |  | 102 | 42 |  |
|  | 102 | John Fen | 2016-02-13 | 90 |  | 102 | 40 |  |
|  | 107 | Ahmed Khan | 2015-01-10 | 75 |  | 104 | 2 |  |
|  | 104 | Raveena | 2016-05-28 | 80 |  | 105 | 4 |  |

* + NO is Traveller Number
	+ KM is Kilometer travelled
	+ NOP is number of travellers travelled in vehicle
	+ TDATE is Travel Date
1. To display NO, NAME, TDATE from the table TRAVEL in descending order of NO.
2. To display the NAME of all the travellers from the table TRAVEL who are travelling by vehicle with

 code 101 or 102.

1. To display the NO and NAME of those travellers from the table TRAVEL who travelled between

‘2015-12-31’ and ‘2015-04-01’.

1. To display all the details from table TRAVEL for the travellers, who have travelled distance more than 100 KM in ascending order of NOP.
2. Modify the definition of column VTYPE.Increase its size to 20.
3. SELECT COUNT (\*), CODE FROM TRAVEL GROUP BY CODE HAVING COUNT(\*)>1;
4. SELECT DISTINCT CODE FROM TRAVEL;
5. SELECT A.CODE,NAME,VTYPE FROM TRAVEL A,VEHICLE B WHERE A.CODE=B.CODE AND KM<90;

|  |  |
| --- | --- |
| **Q-8 Consider the following relations MobileMaster & MobileStock:-** |  |
|  |  |  |  |  |  |  |  |  |  |  | **MobileMaster** |  |  |  |  |  |  |  |  |
|  |  |  | M\_Id |  |  | M\_Company |  |  | M\_Name |  | M\_Price |  |  | M\_Mf\_Date |  |  |
|  |  |  | MB001 |  |  |  |  | Samsung |  |  |  |  | Galaxy |  |  |  | 4500 |  |  | 2013-02-12 |  |  |  |
|  |  |  | MB003 |  |  |  |  | Nokia |  |  |  | N1100 |  | 2250 |  | 2011-04-15 |  |  |  |
|  |  |  | MB004 |  |  |  | Micromax |  |  |  |  | Unite3 |  |  |  | 4500 |  |  | 2016-10-17 |  |  |  |
|  |  |  | MB005 |  |  |  |  | Sony |  |  | XperiaM |  | 7500 |  | 2017-11-20 |  |  |  |
|  |  |  | MB006 |  |  |  |  | Oppo |  |  |  | SelfieEx |  |  |  | 8500 |  |  | 2010-08-21 |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  | **MobileStock** |  |  |  |  |  |  |  |  |
|  |  |  | S\_Id |  |  |  |  | M\_Id |  |  |  |  | M\_Qty |  |  | M\_Supplier |  |
|  |  |  | S001 |  |  |  |  | MB004 |  |  |  | 450 |  |  |  | New Vision |  |  |
|  |  |  | S002 |  |  |  |  | MB003 |  | 250 |  |  | Praveen Gallery |  |
|  |  |  | S003 |  |  |  |  | MB001 |  |  |  | 300 |  |  | Classic Mobile Store |  |  |
|  |  |  | S004 |  |  |  |  | MB006 |  | 150 |  |  |  | A-one Mobiles |  |
|  |  |  | S005 |  |  |  |  | MB003 |  |  |  | 150 |  |  |  | The Mobile |  |  |
|  |  |  | S006 |  |  |  |  | MB006 |  | 50 |  |  |  |  | Mobile Centre |  |

Write the SQL query for questions from (i) to (iv) & write the output of SQL command for questions from (v) to (viii) given below:-

1. Display the Mobile company, Mobile name & price in descending order of their manufacturing date.
2. List the details of mobile whose name starts with „S‟.
3. Display the Mobile supplier & quantity of all mobiles except „MB003‟.
4. To display the name of mobile company having price between 3000 & 5000.
5. SELECT M\_Id, SUM(M\_Qty) FROM MobileStock GROUP BY M\_Id;
6. SELECT MAX(M\_Mf\_Date), MIN(M\_Mf\_Date) FROM MobileMaster;
7. SELECT M1.M\_Id, M1.M\_Name, M2.M\_Qty, M2.M\_Supplier FROM

MobileMaster M1, MobileStock M2 WHERE M1.M\_Id=M2.M\_Id

AND M2.M\_Qty>=300;

|  |  |  |
| --- | --- | --- |
|  | (viii) | SELECT AVG(M\_Price) FROM MobileMaster; |

|  |  |  |  |
| --- | --- | --- | --- |
| **Q-9** |  | **Observe the following table and answer the parts(i) and(ii) accordingly** |  |
|  |  | **Table:Product** |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | Pno | Name | Qty | PurchaseDate |  |  |
|  |  | 101 | Pen | 102 | 12-12-2011 |  |  |
|  |  | 102 | Pencil | 201 | 21-02-2013 |  |  |
|  |  | 103 | Eraser | 90 | 09-08-2010 |  |  |
|  |  | 109 | Sharpener | 90 | 31-08-2012 |  |  |
|  |  | 113 | Clips | 900 | 12-12-2011 |  |  |

1. Write the names of most appropriate columns, which can be considered as candidate keys.
2. What is the degree and cardinality of the above table?

|  |  |
| --- | --- |
| **Q-10 Write SQL queries for (i) to (iv) and find outputs for SQL queries (v) to(viii), which are based**  |  |
|  | **on the tables.** |  |  |  |  |  |  |  |
|  |  |  |  |  | **TRAINER** |  |  |  |  |  |
|  | TID | TNAME | CITY |  | HIREDATE |  | SALARY |  |
|  | 101 | SUNAINA | MUMBAI |  | 1998-10-15 |  | 90000 |  |
|  | 102 | ANAMIKA | DELHI |  | 1994-12-24 |  | 80000 |  |
|  | 103 | DEEPTI | CHANDIGARG | 2001-12-21 |  | 82000 |  |
|  | 104 | MEENAKSHI | DELHI |  | 2002-12-25 |  | 78000 |  |
|  | 105 | RICHA | MUMBAI |  | 1996-01-12 |  | 95000 |  |
|  | 106 | MANIPRABHA | CHENNAI |  | 2001-12-12 |  | 69000 |  |
|  |  |  |  |  | **COURSE** |  |  |  |  |  |
|  | CID |  | CNAME |  | FEES |  | STARTDATE | TID |  |  |  |
|  | C201 |  | AGDCA |  | 12000 |  | 2018-07-02 | 101 |  |  |  |
|  | C202 |  | ADCA |  | 15000 |  | 2018-07-15 | 103 |  |  |  |
|  | C203 |  | DCA |  | 10000 |  | 2018-10-01 | 102 |  |  |  |
|  | C204 |  | DDTP |  | 9000 |  | 2018-09-15 | 104 |  |  |  |
|  | C205 |  | DHN |  | 20000 |  | 2018-08-01 | 101 |  |  |  |
|  | C206 |  | O LEVEL |  | 18000 |  | 2018-07-25 | 105 |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | (i) | Display the Trainer Name, City & Salary in descending order of their Hiredate. |  |
|  | (ii) | To display the TNAME and CITY of Trainer who joined the Institute in the |  |
|  |  | month of December 2001. |  |  |  |  |  |
|  | (iii) | To display TNAME, HIREDATE, CNAME, STARTDATE from tables TRAINER and |  |
|  |  | COURSE of all those courses whose FEES is less than or equal to 10000. |  |
|  | (iv) | To display number of Trainers from each city. |  |
|  | (v) | SELECT TID, TNAME, FROM TRAINER WHERE CITY NOT |  |
|  |  | IN(‘DELHI’, ‘MUMBAI’); |  |  |  |  |  |
|  | (vi) | SELECT DISTINCT TID FROM COURSE; |  |
|  | (vii) | SELECT TID, COUNT(\*), MIN(FEES) FROM COURSE GROUP BY |  |
|  |  | TID HAVING COUNT(\*)>1; |  |  |  |  |
|  | (viii) | SELECT COUNT(\*), SUM(FEES) FROM COURSE WHERE |  |
|  |  | STARTDATE< ‘2018-09-15’; |  |  |  |  |

**Answers**

**Answer-1**

**Define the terms:**

i. Database Abstraction

Ans: Database system provides the users only that much information that is required by them, and hides certain details like, how the data is stored and maintained in database at hardware level. This concept/process is Database abstraction.

ii. Data inconsistency

Ans: When two or more entries about the same data do not agree i.e. when one of them stores the updated information and the other does not, it results in data inconsistency in the database.

iii. Conceptual level of database implementation/abstraction

Ans: It describes what data are actually stored in the database. It also describes the relationships existing among data. At this level the database is described logically in terms of simple data-structures.

iv. Primary Key

Ans : It is a key/attribute or a set of attributes that can uniquely identify tuples within the relation.

v. Candidate Key

Ans : All attributes combinations inside a relation that can serve as primary key are candidate key as they are candidates for being as a primary key or a part of it.

vi. Relational Algebra

Ans : It is the collections of rules and operations on relations(tables). The various operations are selection, projection, Cartesian product, union, set difference and intersection, and joining of relations.

vii. Domain

Ans : it is the pool or collection of data from which the actual values appearing in a given column are drawn.

**Answer-2**

Ans1**.Data Definition Language (DDL): This is a category of SQL commands. All the commands** which are used to create, destroy, or restructure databases and tables come under this category. Examples of DDL commands are - CREATE, DROP, ALTER.

Data Manipulation Language (DML): This is a category of SQL commands. All the commands which are used to manipulate data within tables come under this category. Examples of DML commands are - INSERT, UPDATE, DELETE.

Ans 2: A constraints is a condition or check application on a field or set of fields.

Example: NOT NULL (ensure that column con not have null value), CHECK (make sure that all value satisfy certain criteria), UNIQUE (ensure that all values in a column are different) etc.

Ans 3: Single Row Function work with a single row at a time. A single row function returns a result for every row of a quired table

Examples of Single row functions are Sqrt(), Concat(), Lcase(), Upper(), Day(), etc.

Ans 4. The CHAR data-type stores fixed length strings such that strings having length smaller than the field size are padded on the right with spaces before being stored.

The VARCHAR on the other hand supports variable length strings and therefore stores strings smaller than the field size without modification.

Ans 5: DELETE is DML command while DROP is a DDL command. Delete is used to delete rows from a table while DROP is used to remove the entire table from the database.

Ans 6: MySQL Clients are programs that connect to MySQL Server and issue queries in predefined format.

Ans 7: WHERE clause is used to select particular rows that satisfy the condition where having clause is used in connection with the aggregate function GROUP BY clause. FOR EXAMPLE-

select \* from student where marks >80;

Select \* from student group by stream having marks>90;

Ans 8: i) 100001 ii)No output

Ans 10: Degree 3 and Cardinality=10

Ans 11.COMMIT command permanently saves the changes made during the transacation execution.RROLLBACK command undoes the changes made during transaction execution.

Ans12: DISTINCT

Ans 13: curdate() returns the current date whereas date() extracts the date part of a date.

Ans 14: CREATE TABLE Inventory

 (MaterialId INTEGER PRIMARY KEY,

 Material Varchar(50)NOT NULL,

 Category Char(2) DEFAULT=’E’,

 DatePurchase Date);

**Answer-3**

 (i) SELECT GameName,Gcode FROM GAMES;

1. SELECT \* FROM GAMES WHERE PrizeMoney>7000;
2. SELECT \* FROM GAMES ORDER BY ScheduleDate;
3. SELECT SUM(PrizeMoney),Number FROM GAMES GROUP BY Number;
4. 2
5. 19-Mar-2004 12-Dec-2003
6. 59000
7. 101

103

108

**Answer-4**

 (i) Select \* from faculty where salary > 12000;

* 1. Select \* from Courses.where fees between 15000 and 50000;
	2. Update courses set fees = fees + 500 where Cname = “System Design”;
	3. Select \* from faculty fac,courses cour where fac.f\_id = cour.f\_id and fac.fname = 'Sulekha' order by cname desc;
	4. 4

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  (vi) |  | Amit |  | Grid Computing |
|  |  | Rakshit |  | Computer Security |
|  |  | Rashmi |  | Visual Basic |
|  |  | Sulekha |  | Human Biology |

**Answer-5.**

1. SELECT NAME from GRADUATE where DIV = ‘I’ order by NAME;
2. SELECT NAME,STIPEND,SUBJECT, STIPEND\*12 from GRADUATE;
3. SELECT SUBJECT,COUNT(\*) from GRADUATE group by SUBJECT having SUBJECT=’PHYISCS’ or SUBJECT=’COMPUTER SC’;
4. INSERT INTO GRADUATE values(11,’KAJOL’,300,’COMPUTER SC’,75,1);
5. ALTER TABLE GRADUATE ADD(GRADE CHAR(2));
6. (i) 63

(ii) 800

(iii) 475

1. 4

**Answer-6**

 a. SELECT sendername from Sender where sendercity=’Mumbai’;

1. Select R.RecIC, S.Sendername, S.SenderAddress, R.RecName, R.RecAddress

 from Sender S, Recepient R where S.SenderID=R.SenderID ;

 c. SELECT \* from Recipent ORDER By RecName;

 d. SELECT COUNT( \*) from Recipient Group By RecCity;

Ans. e)

SenderCity

Mumbai

New Delhi

 f) A.SenderName B.RecName

R Jain H Singh

S Jha P K Swamy

 g) RecName RecAddress

S Mahajan 116, A Vihar

S Tripathi 13, BID, Mayur Vihar

 h) RecID RecName

ND08 S Mahajan

ND48 STripathi

**Answer-7**

|  |  |  |  |
| --- | --- | --- | --- |
|  (i) |  | SELECT NO, NAME, TDATE FROM TRAVEL ORDER BY NO DESC; |  |
|  (ii) |  | SELECT NAME FROM TRAVEL WHERE CODE=‘101’ OR CODE=’102’; |  |
|  |  |  OR |  |
|  |  | SELECT NAME FROM TRAVEL WHERE CODE IN (101,102); |  |
|  (iii) SELECT NO, NAME from TRAVEL |  |
|  |  | WHERE TDATE >= ‘2015­04­01’ AND TDATE <= ‘2015­12­31’; |  |
|  |  |  OR |  |  |  |
|  |  | SELECT NO, NAME from TRAVEL WHERE TDATE BETWEEN ‘2015­04­01’ AND ‘2015­12­31’; |  |
|  (iv) SELECT \* FROM TRAVEL WHERE KM > 100 ORDER BY NOP;1. ALTER TABLE VEHICLE MODIFY VTYPE VARCHAR(20);
 |  |
|  (vi) |  |  | COUNT(\*) |  | CODE |  |  |
|  | 2 |  |  | 101 |  |  |
|  |  2 |  |  | 102 |  |  |
|  (vii) DISTINCT CODE |  |  |  |
|  |  | 101 |  |  |  |  |  |  |
|  |  102 |  |  |  |  |  |  |

 103

 104

 105

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| (viii) | CODE |  | NAME |  | VTYPE |  |
|  | 104 |  | Ahmed Khan | CAR |  |
|  | 105 |  | Raveena |  | SUV |  |
|  |  | Answer-8 |
| Ans | (i) | SELECT M\_Compnay, M\_Name, M\_Price FROM MobileMaster |
|  |  | ORDER BY M\_Mf\_Date DESC; |
|  | (ii) | SELECT \* FROM MobileMaster WHERE M\_Name LIKE “S%‟; |
|  | (iii) | SELECT M\_Supplier, M\_Qty FROM MobileStock WHERE M\_Id <> ‘MB003’; |
|  | (iv) | SELECT M\_Company FROM MobileMaster WHERE M\_Price |
|  |  | BETWEEN 3000 AND 5000; |

(v)

|  |  |
| --- | --- |
| M\_Id | SUM(M\_Qty) |
| MB004 | 450 |
| MB003 | 400 |
| MB001 | 300 |
| MB006 | 200 |

(vi)

|  |  |
| --- | --- |
| MAX(M\_Mf\_Date) | MIN(M\_Mf\_Date) |
| 2017-11-20 | 2010-08-21 |

(vii)

|  |  |  |  |
| --- | --- | --- | --- |
| M\_Id | M\_Name | M\_Qty | M\_Supplier |
| MB004 | Unite3 | 450 | New\_Vision |
| MB001 | Galaxy | 300 | Classic Mobile Store |

1. 5450

**Answer-9**

 i) Candidate Key: Pno, Name

 ii) Degree:4 Cardinality:5

**Answer-10**

 (i)SELECT TNAME, CITY, SALARY FROM TRAINER ORDER BY HIREDATE;

 (ii)SELECT TNAME, CITY FROM TRAINER WHERE HIREDATE BETWEEN ‘2001-12-01’ AND ‘2001-12-31’;

 (iii)SELECT TNAME,HIREDATE,CNAME,STARTDATE FROM TRAINER, COURSE WHERE TRAINER.TID=COURSE.TID AND FEES<=10000;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | (iv) | SELECT CITY, COUNT(\*) FROM TRAINER GROUP BY CITY; |  |
|  |  | (v) | SELECT TID, TNAME, FROM TRAINER WHERE CITY NOT IN(‘DELHI’,’MUMBAI’); |  |
|  |  | vi) | TIDTNAME |  |  |  |  |  |  |
|  |  | 103 | DEEPTI |  |  |
|  |  | 106 | MANIPRABHA |  |  |
|  |  | vii) | DISTINCT TID |  |  |
|  |  |  | 101 |  |  |  |  |  |  |  |
|  |  | 103 |  |  |  |  |  |  |  |
|  |  | 102 |  |  |  |  |  |  |  |
|  |  | 104 |  |  |  |  |  |  |  |
|  |  | 105 |  |  |  |  |  |  |  |
|  |  | viii) | TID COUNT(\*) MIN(FEES) |  |  |
|  |  |  101 |  | 2 |  |  | 12000 |  |  |
|  |  | ix) |  COUNT(\*) SUM(FEES) |  |  |  |
|  |  |  4 |  |  65000 |  |  |

**CHAPTER 15 : Creation of Django based Web application**

1. What is Django?

2. What is the default URL of your Django project when you run it on builtin server?

 3 What is the default port used by built in web server of Django?

4 What is the Django shortcut method to render an html response?

5. Differentiate between Django GET and POST method.

6. What are the features of Django?

7. What is the history of Django framework?

8. what is MVC?

9. What is MTV pattern of Django Architecture?

10. Write a program to perform read and write operation with .csv file.

11 Explain the importance of settings.py file and what data/ settings it contains.

12 Write the following commands for Django Project

i)To create a project name XYZ company

ii)to run the server of Django for XYZ companyen

iii) to create an app name **employee**

iv)write command to set the virtual environment

13 Mr Rajesh create a project name ABC in Django framework and an app in this project name friendchat but he forgot to register the app .Help Mr rajesh to register the app Friendchat with the project name ABC

14 Mr Karan created a project name “PQR” in Django. Name the file which is automatically created on creation of project PQR

15 Mrs Neelam create an app Friendbook inside the Django project folder name Messenger .Name the files which is created inside app friendbook automatically

**Answers : Creation of Django based Web application**

1 Django s a free and open source web application framework, written in Python. A web framework is a set of components that helps you to develop websites faster and easier.

2 <http://127.0.0.1:8000>

3 8000

4 Render\_to\_response

5 GET and POST. GET and POST are the only HTTP methods to use when dealing with forms. Django's login form is returned using the POST method, in which the browser bundles up the form data, encodes it for transmission, sends it to the server, and then receives back its response.

Both of these are dictionary-like objects that give you access to GET and POST data. POST data generally is submitted from an HTML <form> , while GET data can come from a <form>Top of Form

Top of Formor the query string in the page's URL.

6 1. Excellent Documentation

2. Python Web-framework

3. SEO optimized

4. High scalability

5. versatile in nature

6. offers high security

7. Thorougly tested

8. provides rapid development

7 . Django was created by two web developers Adrian Holovaty and Simon Willison working at the Lawrence Journal-World Newspaper in 2003. It was released publicly as a BSD license in July 2005. The framework was named after guitarist Django Reinhardt.

The main reason behind Django’s existence is that Django inherited Python’s “batteries-included” approach and includes pre-made modules and applications for common tasks in web development like user authentication, templates, routes, and views, admin interface, robust security and support for multiple database backends.

8 . It is an acronym for Model View Controller. MVC pattern is a Product Development Architecture. It solves the traditional approach’s drawback of code in one file, i.e., that MVC architecture has different files for different aspects of our web application/ website.

The MVC pattern has three components, namely Model, View, and Controller.

 

1. Model

The Model is the part of the web-app which acts as a mediator between the website interface and the database. In technical terms, it is the object which implements the logic for the application’s data domain. There are times when the application may only take data in a particular dataset, and directly send it to the view (UI component) without needing any database then the dataset is considered as a model.

Although today if we want any kind of website we need to have some sort of database as we must be requiring some user input even if we are creating a simple blog site.

 

### 2. View

This component contains the UI logic in the Django architecture.

View is actually the User Interface of the web-application and contains the parts like HTML, CSS and other frontend technologies. Generally, this UI creates from the Models component, i.e., the content comes from the Models component.

### 3. Controller

The controller as the name suggests is the main control component. What that means is, the controller handles the user interaction and selects a view according to the model.

The main task of the controller is to select a view component according to the user interaction and also applying the model component.

This architecture has lots of advantages and that’s why Django is also based on this architecture. It takes the same model to an advanced level.

9 Django is mainly an MTV (Model-Template-View) framework. It uses the terminology Templates for Views and Views for Controller.

Template relates to the View in the MVC pattern as it refers to the presentation layer that manages the presentation logic in the framework and essentially controls the content to display and how to display it for the user.

Thus our [**Python code**](https://data-flair.training/blogs/python-syntax-semantics/) will be in views and models and HTML code will be in templates.

 

In MTV, the definitions of Model still remain the same that is, the Model contains the [logical file structure of the project](https://data-flair.training/blogs/django-project-layout/)and is the middleware & data handler between database and view. The Model provides a definition of how the data formats as coming from the view so, it stores in the database and vice-versa, i.e., the retrieving information from the database transfers to the view in the displayable format.

The View in MTV architecture can look like the controller, but it’s not. The View in this MTV architecture is formatting the data via the model. In turn, it communicates to the database and that data which transfer to the template for viewing.

The template is making the life of a frontend developer easy that’s for sure. It also provides more development speed then the traditional MVC architecture would.

Template’s main goal is to keep everything that browser renders. The model’s data that’s coming from the server in different parts while integrating the same when the user interacts with the website. Here, the template layer in Django is more similar to the views layer in MVC pattern. This layer is more focused and with [Django framework](https://data-flair.training/blogs/django-tutorial/), it provides much more extendibility to the frontend developers than what MVC architecture was giving.

 

10 import csv

def readcsv():

with open('C:\\Users\\ViNi\\Downloads\\data.csv','rt')as f:

data = csv.reader(f) #reader function to generate a reader object

 for row in data:

print(row)

def writecsv( ):

with open('C:\\Users\\ViNi\\Downloads\\data.csv', mode='a', newline='') as file:

writer = csv.writer(file, delimiter=',', quotechar='"') #write new record in file writer.writerow(['4', 'Devansh', 'Arts', '404'])

print("Press-1 to Read Data and Press-2 to Write data: ")

a=int(input())

if a==1:

 readcsv()

elif a==2:

writecsv()

 else:

 print("Invalid value")

11When Django server starts, it first looks for settings.py. As the name settings, it is the main settings file of your web application. Everything inside your Django project like databases, backend engines, middlewares, installed applications, main URL configurations, static file addresses, templating engines, allowed hosts and servers and security key stores in this file as a list or dictionary.

So, when your Django server starts it executes settings.py file and then loads particular engines and databases so that when a request is given it can serve the same quickly.

12 Ans i)django-admin start project XYZ

ii)python manage.py runserver

iii)python manage.py startapp employee

iv)virtualenv <projectname>

13 we add the name of app Friendchat with the INSTALLED\_APPS sections of the file name settings.py

14 init\_.py,settings.py,urls.py,wsgi.py

15 init\_.py,admin.py,apps.py,models.py,test.py,views.py

**CHAPTER 16 : Interface Python with SQL**

Q1. What is MySQLdb?

Q2. What is resultset?

Q3. What is database cursor?

Q4. What is database connectivity?

Q5.Which function do use for executing a SQL query?

Q6. Which package must be imported to create a database connectivity application?

Q7. Differentiate between fetchone() and fetchall()

Q8. How we can import MYSQL database in python?

Q9. Write a query to rename the name of the artist from Towang to Tauwang.

Q10. Write a query to delete an entity from the table Artists whose id is 1

Q. 11 Write a small python program to insert a record in the table books with attributes (title ,isbn).

 Q. 12 Write a small python program to retrieve all record from the table books with attributes (title ,isbn).

**Answers : Interface Python with SQL**

A1. MySQLdb is an open-source freely available relational database management system that uses Structured Query Language. Now one of the most important question here is “What is SQL?”

SQL (Structured Query Language) is a standard language for relational databases that allow users to do various operations on data like, Manipulating, Creating, Dropping, etc.  In a nutshell, SQL allows you to do anything with the data.

A2. Result set refers to a logical set of records that are fetched from the database by executing a query.

A3. Database cursor is a special control structure that facilitates the row by row processing of records in the result set

A4. Database connectivity refers to connection and communication between an application and a database system.

A5. Cursor. execute(sql query)

A6. Mysql.connector

A7. fetchone() − It fetches the next row of a query result set. A result set is an object that is returned when a cursor object is used to query a table.

fetchall() − It fetches all the rows in a result set. If some rows have already been extracted from the result set, then it retrieves the remaining rows from the result set.

A8. Use the mysql.connector.connect() method of MySQL Connector Python with required parameters to connect MySQL. Use the connection object returned by a connect() method to create a cursor object to perform Database Operations. The cursor.execute() to execute SQL queries from Python.

A9.updateSql = "UPDATE Artists SET NAME= 'Tauwang' WHERE ID = '1' ;"

 cursor.execute(updateSql)

A10. deleteSql = "DELETE FROM Artists WHERE ID = '1'; "

 cursor.execute(deleteSql)

 A 11 import mysql.connector as Sqlator

 conn =sqlator.connect(host=”localhost”,user=”root”,passwd=””,database=”test”)

 cursor=con.cursor()

 query=”INSERT into books(title,isbn) values(‘{}’{})”.format(‘Neelesh’,’5143’)

 cursor.execute(query)

 con.close()

 A 12 import mysql.connector as Sqlator

 conn =sqlator.connect(host=”localhost”,user=”root”,passwd=””,database=”test”)

 cursor=con.cursor()

 query=”select \* from query”

 cursor.execute(query)

 data=cursor.fetchall()

 for row in data:

 print(row)

 conn.close()

**CHAPTER 17 : SOCITY LAW AND ETHICS**

**Cyber crimes** is one of the most threatening terms that is an evolving phase. It is said that major percentage of the World War III will be based on cyber-attacks by cyber armies of different countries.

Cyber crime can be categorized into 2 types. These are peer-to-peer attack and computer as weapon. In peer-to-peer attack, attackers target the victim users; and in computer as weapon attack technique, computers are used by attackers for a mass attack such as illegal and banned photo leak, IPR violation, pornography, cyber terrorism etc.

Cyber-criminals are involved in activities like accessing online accounts in unauthorized manner; use Trojans to attack large systems, sending spoofed emails. But cyber-criminals do not report any bug is found in a system, rather they exploit the bug for their profit.

**Cyber-laws** were incorporated in our law book not only to punish cyber criminals but to reduce cyber crimes and tie the hands of citizens from doing illicit digital acts that harm or damage other’s digital property or identity.

The Indian legislature thought of adding a chapter that is dedicated to cyber law. This finally brought India’s Information Technology (IT) Act, 2000 which deals with the different cyber-crimes and their associated laws.

Under section 66 of IT Act, 2000 which later came up with a much broader and precise law says that cracking or illegally hacking into any victim’s computer is a crime. It covers a wide range of cyber-crimes under this section of the IT Act.

**DDoS** (Distributed Denial of Service), IPR violation, pornography are mass attacks done using a computer. Spying someone using keylogger is an example of peer-to-peer attack.

**HOTS BASED QUESTIONS :**

1. What are intellectual propery rights ?
2. What is Plagiarism?
3. What is open source softwares ?
4. What are the privacy laws in IT ?
5. What is Cyber Crime and cyber security ?
6. What is the difference between Phishing and Vishing ?
7. What is illegal download ? What are the method to avoid it ?
8. What is child pornography?
9. What do you mean by cyber scam and how to avoid it ?

10. What is W-waste management ?

11. What are the biometrics devices? What do you mean by internet as an echo chamber ?

**ANSWERS : SOCITY LAW AND ETHICS**

1. **Intellectual property rights** are the **rights** given to persons over the creations of their minds. They usually give the creator an exclusive **right** over the use of his/her creation for a certain period of time12.

2. **Plagiarism** is the "wrongful appropriation" and "stealing and publication" of another author's "language, thoughts, ideas, or expressions" and the representation of them as one's own original work. **Plagiarism** is considered academic dishonesty and a breach of journalistic ethics.

3. Open-source software is a type of computer software in which source code is released under a license in which the copyright holder grants users the rights to study, change, and distribute the software to anyone and for any purpose. Open-source software may be developed in a collaborative public manner.

4. **Privacy law** refers to the laws that deal with the regulation, storing, and using of [personally identifiable information](https://en.wikipedia.org/wiki/Personally_identifiable_information) of individuals, which can be [collected](https://en.wikipedia.org/wiki/Personally_identifiable_information_%28PII%29_gathering) by governments, public or private organisations, or other individuals.

Privacy laws are considered within the context of an individual's [privacy](https://en.wikipedia.org/wiki/Privacy) rights or within reasonable [expectation of privacy](https://en.wikipedia.org/wiki/Expectation_of_privacy).

5. The **crime** that involves and uses computer devices and Internet, is known as **cybercrime**. **Cybercrime** can be committed against an individual or a group; it can also be committed against government and private organizations. It may be intended to harm someone's reputation, physical harm, or even mental harm.

6. Voice **phishing**, or “**vishing**”, works the same way as a spear **phishing** attack (by using personalized information to leverage trust), but uses a different channel: the telephone. The scammer calls an individual, pretending to be calling for a trusted organization (like the bank or your credit card company).

7. Illegal downloading places your computer at high risk of receiving viruses. Most illegal downloading is done through Peer-to-Peer (P2P) software, which allows people to share their files with others.

**1. Remove the Incentive**

One of the most-effective ways of dealing with piracy is by removing the incentive for the consumers to look for pirated content. Effectively this can be characterised by offering a good product and a good user experience at a fair price. Price is not the only differentiator. The importance of the user experience cannot be understated; viewers want sympathetic interfaces that contain the usual sophisticated bells and whistles such as personal recommendations, and they want excellent picture quality with no buffering and/or latency. The more the industry can provide that at realistic cost, the less people will be driven towards pirate arms.

You are not going to stop everyone from watching pirated content, but this can definitely remove some of the more casual illegal consumers.

**2. PR & Education**

There are several strands to this, but effectively the goal is to highlight to the consumer that piracy is a crime and it is illegal. To those within the industry this is obvious; to those outside it, it is anything but.

We’ve written recently of the problem of [password sharing](https://www.viaccess-orca.com/blog/ott-streaming-services-password-sharing) and how up to 42% of GenZ viewers are sharing log-in credentials. This has become a normative crime — one that ‘everyone’ does and so the activity no longer appears as illegal because the behaviour is normal. The usual example given is speeding, but [video piracy](https://www.viaccess-orca.com/blog/kodi-video-piracy) is prevalent enough that maybe it should replace speeding in the textbooks. Efforts made to remind viewers that piracy is both morally wrong and a crime can prove successful in driving down numbers, as have been campaigns that have highlighted the role of organised crime in pirate activities, exposure to malware and inappropriate material, and the danger to advertisers of [negative brand association](http://media.digitalcitizensactionalliance.org/314A5A5A9ABBBBC5E3BD824CF47C46EF4B9D3A76/4af7db7f-03e7-49cb-aeb8-ad0671a4e1c7.pdf) with pirate sites.

**3. Barriers to Entry**

In the same way that you want to make it easy for consumers to choose legal alternatives, you want to make it hard for the pirates. The era of unprotected content is long gone. Content owners look to protect their investment and Intellectual Property, and will only strike licensing deals with operators that can demonstrate that they take such threats to the revenue stream seriously in turn.

What that means in practice, is changing all the time. Where once card-based Conditional Access Systems were as sophisticated as operators could get, the move towards IP and OTT delivery has necessitated a transition to software-based Digital Rights Management in turn. Even so, there is no single technology that can guarantee security. The best practice now involves a multi-disciplinary approach that encompasses both prophylactic anti-piracy measures and the following two criteria governing detection and enforcement as well.

**4. Technology & Operations**

You can’t fight ghosts; you need to know what content is being pirated and where. That means being able to identify content, a live pirate stream as having come from your own video ecosystem. That requires technical intervention at the pre-transmission stage. Monitoring is the key to success here, whether automated — and there are some interesting developments in AI monitoring of video streams, both deployed and under development — or human-led. In an ideal world, at least for now, a hybrid solution is typically deployed.

Once a breach has been detected, swift action is necessary to deal with it. This has become ever-more important in recent years as piracy has pivoted towards realtime streaming and the lucrative illegal revenue streams associated with live sport in particular (the premium prices paid for accessing sports content making it a particular target).

Here, high-level agreements with the search engines and social networks consumers use to locate pirated content are key to rapid and realtime action.

**5. Legal & Enforcement**

There are a variety of countermeasures that TV Service Providers can use to interrupt and remove pirated content, from the traditional take-down notices to increasingly sophisticated realtime messages. With the correct anti-piracy services, operators can identify consumers who are watching [illegal streams](https://www.viaccess-orca.com/blog/how-football-piracy-and-illegal-streaming-is-ramping-up) and incentivize them switch to legitimate services. These actions scale from soft to hard, with the harder countermeasures involving the introduction of law enforcement authorities.

The key is speed. While prosecution will always be a much slower process that happens after the event, removing the content from the internet as swiftly as possible is the best way to deter pirates and drive consumers towards legal alternatives.

**6. Cooperation**

While companies at all levels of the broadcast chain are used to competition, the losses to [content piracy](https://www.viaccess-orca.com/blog/combating-content-piracy) are too great for there not to be concerted efforts at cooperation. These need to take place at all levels of the industry and at all steps of the process, from production and on-set content security through to transmission.

The concept of herd immunity that is such a crucial aspect of global vaccination programs is important here. The more companies and organisations that are involved, the more effective the overall solution. Unfortunately the converse can also be true, and if there is any weak spot in the chain at any point, even in a place far removed from what was considered to be the primary route to the consumer’s television or device, that weakness is there to be exploited.

8. **child pornography *means***

* (a) a photographic, film, video or other visual representation, whether or not it was made by electronic or mechanical means,
	+ (i) that shows a person who is or is depicted as being under the age of eighteen years and is engaged in or is depicted as engaged in explicit sexual activity, or
	+ (ii) the dominant characteristic of which is the depiction, for a sexual purpose, of a sexual organ or the anal region of a person under the age of eighteen years;
* (b) any written material, visual representation or audio recording that advocates or counsels sexual activity with a person under the age of eighteen years that would be an offence under this Act;
* (c) any written material whose dominant characteristic is the description, for a sexual purpose, of sexual activity with a person under the age of eighteen years that would be an offence under this Act; or
* (d) any audio recording that has as its dominant characteristic the description, presentation or representation, for a sexual purpose, of sexual activity with a person under the age of eighteen years that would be an offence under this Act.

9. Cybercriminals are constantly looking for ways to make money at your expense. Individuals and organisations often fall prey to frauds that involve various forms of social engineering techniques, where the information required is garnered from a person rather than breaking into a system.

These scams are typical examples of how cyber attackers can easily play on people’s psychology and perceptions. The tips provided here are aimed to help you protect yourself. Awareness is your best defence!

General tips:

* Check your online accounts regularly.
* Check your bank account regularly and report any suspicious activity to your bank.
* Perform online payments only on secure websites (check the URL bar for the padlock and https) and using secure connections (choose a mobile network instead of public Wi-Fi).
* Your bank will never ask you for sensitive information such as your online account credentials over the phone or email.
* If an offer sounds too good to be true, it’s almost always a scam.
* Keep your personal information safe and secure.
* Be very careful about how much personal information you share on social network sites. Fraudsters can use your information and pictures to create a fake identity or to target you with a scam.
* If you think that you have provided your account details to a scammer, contact your bank immediately.
* Always report any suspected fraud attempt to the police, even if you did not fall victim to the scam.

10. Waste management (or waste disposal) are the activities and actions required to manage waste from its inception to its final disposal. This includes the collection, transport, treatment and disposal of waste, together with monitoring and regulation of the waste management process.

11. A **biometric device** is a security identification and authentication **device**. Such **devices** use automated methods of verifying or recognising the identity of a living person based on a physiological or behavioral characteristic. These characteristics include fingerprints, facial images, iris and voice recognition.

**echo chamber** refers to the overall phenomenon by which individuals are exposed only to information from like-minded individuals, while filter bubbles are a result of algorithms that choose content based on previous **online** behavior, as with search histories or **online** shopping activity.

**COMPUTER SCIENCE – NEW (083) SAMPLE QUESTION PAPER I (2019-20) CLASS- XII**

**Max. Marks: 70** **Time: 3 hrs**

**General Instructions:**

* All questions are compulsory.
* Question paper is divided into 4 sections A, B, C and D.
	+ Section A : Unit-1
	+ Section B : Unit-2
	+ Section C: Unit-3
	+ Section D: Unit-4

|  |
| --- |
| **SECTION** **A** |
| Q1 | A) |  Which of the following is valid arithmetic operator in Python:(i) % (ii) ! (iii) > (iv) or  | 1 |
|  | B) | Identify the valid identifier name from the following(i) 9if (ii) roll\_no  | 1 |
|  | C) | Name the Python Library modules which need to be imported to invoke thefollowing functions:(i) cos() (ii) dump () | 1 |
|  | D) | Rewrite the following code in python after removing all syntax error(s).Underline each correction done in the code. 5=kfor m in range(0,k)  if m%4=0: print(m\*4)  else: print “m+3” | 2 |
|   | E) | Find the output of the followingdef textchanger(text): L = len(text) ntext=”” for i in range(0,L) : if text [i].isupper() :  ntext = ntext + text[i].lower() elif text [i].isalpha() :  ntext = ntext + text[i].upper() else: ntext = ntext + ‘bb’ print(ntext)textchanger(gmail@com) | 2 |
|  | F) | Study the following program and select the possible output(s) from the options (i) to (iv) following it. Also, write the maximum and the minimum values that can be assigned to the variable Y. import random X= random.random() Y= random.randint(0,4) print(int(X),":",Y+int(X)) (i)0 : 0 (ii) 1 : 6 (iii)2 : 4 (iv) 0 : 3 | 2 |
|  | G) | Find and write the output of the following python code: def Change(X ,Y=10): X=X+Y X=x-Y print( X,"#",Y) return (X)X=5Y=20X=Change(X,Y)print(X,"#",Y)Y=Change(Y)print(X,"#",Y) | 3 |
| Q2 | A) | Define comment in python | 1 |
|  | B) | Identify the correct option for declaration of a tuple with single elementi)(‘kv’,) ii)(5,)iii(5)iv)i ) and ii) are correct way to declare tuple | 1 |
|  | C) | Declare a dictionary of toppers of your class with their name as keys and marks obtained as there value | 1 |
|  | D) | Find the output of the followingX=”Iamaprogrammer”print(X[2:])print(X[3:8] | 1 |
|  | E) | What will the following function return?def add(a,b,c): print(a+b+c) | 1 |
|  | F) | What do you understand by actual and formal argument Differentiate between them with a python example.OrWrite a recursive function rec\_sum(n) where n is any natural number and function returns sum of n natural number |  |
|  | G) | Write a function in python to count the number of lines in a text file ‘SAMPLE.TXT’ which is starting with an alphabet ‘H’ .ORWrite a method/function DISPLAY() in python to count number of lines from a text file SAMPLE.TEXT. | 2 |
|  | H) | What will be the output of the following code :Import matplotlib. pyplot as plt#Plotting to our canvasplt.plot([1,2,3],[4,5,1])#Showing what we plottedplt.show()**OR**Write a program to create a horizontal bar graph of following data. Add suitable labels. City Population Delhi 23456123 Mumbai 20083104 Bangalore 18456123 Hyderabad 13411093 | 2 |
|  | I) | Compare the algorithm efficiency of linear and binary search algorithm | 2 |
|  | J) | Write a function in Python, INS\_QU(A,da) and DEL\_QU(A) for performinginsertion and deletion operations in a Queue. A is the list used for implementingqueue and d is the value to be inserted. ORWrite a function in python, Push(employee) and Pop(employee) to add and delete An employee where employee is a tuple which contains name of employee and empno considering them to act as push and pop operation of the stack data structure | 4 |
| **SECTION** **B** |
| Q3 | A) | ----------- is a set of rules used for communication  | 1 |
|  | B) | -------------protocol is used for sending email | 1 |
|  | C) | Define modulation and write name of two modulation techniques | 1 |
|  | D) | Define IOT | 1 |
|  | E) | Explain the working of Email | 2 |
|  | F) | Differentiate between IPv4 and IPv6 | 2 |
|  | G) | Expand the following termsi)NFC ii)IMAP iii)CDMAiv)MAC v)VoIP vi)URL |  3 |
|  | H) | Standard Bank has set up its new center in India for its office and web based activities. It has five buildings as shown in the diagram below: A  E D B C

|  |
| --- |
| Distance between various buildings |
| A to B  | 50 Mts |
| B to C  | 30 Mts |
| C to D  | 30 Mts |
| D to E  | 35 Mts |
| E to C  | 40 Mts |
| D to A  | 120 Mts |
| D to B  | 45 Mts |
| E to B  | 65 Mts |

|  |
| --- |
| No of computers |
| A | 55 |
| B | 180 |
| C | 60 |
| D | 55 |
| E | 70 |

(a) Suggest a possible cable layout for connecting the buildings.1. Suggest the most suitable place to install the server of this organization.
2. Suggest the placement of the following devices with justification.
	1. Hub/Switch
	2. Repeater

 (d) The company wants to link its head office in ‘A’ building to its Office in Sydney1. Which type of transmission medium is appropriate for such a link?
2. What type of network this connection result into?
 | 4 |
| **SECTION C** |
| Q4 | A) | Which command is used to create a django projecti)django-admin startproject <projectname>ii)django\_admin startproject <projectname>iii)django-admin start project <projectname>iv)All of these  | 1 |
|  | B) | Which of the following is not a DDL commandi)Createii)Alteriii)Deleteiv)All are DDL Command | 1 |
|  | C) | What is menat by NULL values in MYSQL | 1 |
|  | D) | Differentiate between Char and Varchar DataTYpe | 1 |
|  | C) | Differentiate between Primary Key and Foregin keyOrDifferentiate between Alter and Update Command | 2 |
|  | D) | Explain teo types of HTTP request | 2 |
|  | E) | Consider the following tables HOSPITAL. Give outputs for SQL queries (i) to (iii)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No  | Name  | Age  | Department  | Dateofadmin  | Charge  | Sex  |
| 1  | Arpit  | 62  | Surgery | 21/01/06 | 300 | M |
| 2 | Zayana | 18 | ENT | 12/12/05 | 250 | F |
| 3 | Kareem | 68 | Orthopedic | 19/02/06  | 450 | M |
| 4 | Abhilash | 26 | Surgery | 24/11/06 | 300 | M |
| 5 | Dhanya | 24 | ENT | 20/10/06  | 350 | F |
| 6 | Siju | 23 | Cardiology | 10/10/06 | 800 | M |
| 7 | Ankita | 16 | ENT | 13/04/06  | 100 | F |
| 8 | Divya | 20 | Cardiology | 10/11/06  | 500 | F |
| 9 | Nidhin | 25 | Orthopedic | 12/05/06  | 700 | M |
| 10 | Hari | 28 | Surgery | 19/03/06  | 450 | M |

**i)** Select SUM(Charge) from HOSPITAL where Sex=’F’; (ii) Select COUNT(DISTINCT Department ) from HOSPITAL;(iii) Select SUM(Charge) from HOSPITAL group by Department; | 3 |
|  | F) | Consider the tables ITEMS & COMPANY. Write SQL commands for the statements (i) to (iv) and give the outputs for SQL queries (v) to (viii). Table : ITEMS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **PNAME** | **PRICE** | **MDATE** | **QTY** |
| T001 | Soap | 12.00 | 11/03/2007 | 200 |
| T002 | Paste | 39.50 | 23/12/2006 | 55 |
| T003 | Deodorant | 125.00 | 12/06/2007 | 46 |
| T004 | Hair Oil | 28.75 | 25/09/2007 | 325 |
| T005 | Cold Cream | 66.00 | 09/10/2007 | 144 |
| T006 | Tooth Brush | 25.00 | 17/02/2006 | 455 |

Table : COMPANY

|  |  |  |
| --- | --- | --- |
| **ID** | **COMP** | **City** |
| T001 | HLL | Mumbai |
| T008 | Colgate | Delhi |
| T003 | HLL | Mumbai |
| T004 | Paras | Haryana |
| T009 | Ponds | Noida |
| T006 | Wipro | Ahmedabad |

i)To display PNAME, PRICE \* QTY only for the where price is greater than 100 ii)To display company name & city for ID= T001 and T008iii)To delete the items produced before 2007. iv)To increase the quantity by 20 for soap and paste.  | 4 |
| **SECTION D** |
| Q5 | A) | What are the different ways in which authentincation of a person can be performed? | 2 |
|  | B) | Define the term open data | 1 |
|  | C) | Write any two categories of cyber crime | 2 |
|  | D) | Explain Phishing.  | 2 |
|  | E) | How can we recycle e-waste safely? | 2 |
|  | F) | if someone attacks your web site, who would you complain to ?  | 1 |

**COMPUTER SCIENCE – NEW (083) SAMPLE QUESTION PAPER (2019-20) CLASS- XII**

MARKING SCHEME

|  |
| --- |
| **SECTION** **A** |
| Q1 | A) | (i) %  | 1 |
|  | B) |  (ii) roll\_no  | 1 |
|  | C) |  (i) cos() :-Math (ii) dump ():-pickle | 1 |
|  | D) | Rewrite the following code in python after removing all syntax error(s).Underline each correction done in the code. k=5for m in range(0,k):  if m%4==0: print(m\*4)  else: print (m+3) | 2 |
|   | E) | GMAILbbCOM | 2 |
|  | F) | Mimimum value of Y=0Maximum value of Y=4(i)0 : 0 ( (iv) 0 : 3 | 2 |
|  | G) | 5 # 205 # 2020 # 105 # 20 | 3 |
| Q2 | A) | Comments are the code lines which are not executed by python interprererIt is used to make program more readable and easy to understand | 1 |
|  | B) | iv)i ) and ii) are correct way to declare tuple | 1 |
|  | C) | Top={‘A’:97,”B:98,’C’:99} | 1 |
|  | D) | Find the output of the followingX=”Iamaprogrammer”print(X[2:]) :maprogrammerprint(X[3:8]maprog | 1 |
|  | E) | None | 1 |
|  | F) | Actual argument is the argument defined at the time of function calling .formal argument is used at the time of function definition.Actual argument can be a variable,or expression or literalOrdef rec\_sum(n): if n =1: return(1) else: return((a+rec\_sum(n-1)) | 2 |
|  | G) | def count(): f1=open(‘sample.txt’,’r’)c=0. l1=f1.readlines() for k in l1: If k[0]==’H’ C=C+1 ORdef count(): c=0 f1=open(‘sample.txt’,’r’). l1=f1.readlines() For k in l1: C=C+1 | 2 |
|  | H) | **OR****½ marks for import matplotlib.puplot****½ marks for creation of list****½ marks for barhfunction****½ marks for use of xticks**  | 2 |
|  | I) | 1 marks for linear search and 1 foe binary search | 2 |
|  | J) | def IN\_QU(A): data=int(input("enter data to be inserted: ")) A.append(data)def DEL\_QU(A): if (Arr==[]): print( "Queue empty") else: print ("Deleted element is: ",A[0]) del(A[0])( ½ mark insert header)( ½ mark for accepting a value from user)( ½ mark for adding value in list)( ½ mark for delete header)( ½ mark for checking empty list condition)( ½ mark for displaying “Queue empty”)( ½ mark for displaying the value to be deleted)( ½ mark for deleting value from list) ORdef Push(employee): a=int(input("enter package title : ")) employee.append(a)def Pop(employee): if (employee==[]): print( "Stack empty") else: print ("Deleted element:",employee.pop())(½ mark for Push() header)( ½ mark for accepting a value from user)( ½ mark for adding value in list)( ½ mark for Pop() header)( ½ mark for checking empty list condition)( ½ mark for displaying “Stack empty”)( ½ mark for displaying the value to be deleted)( ½ mark for deleting the value) | 4 |
| **SECTION** **B** |
| Q3 | A) | PROTOCOL | 1 |
|  | B) | SMTP | 1 |
|  | C) | Modulation is the process of modulating message signal .Two Types of modulation are :Amplitude modulation and Frequency Modulation | 1 |
|  | D) | It is the network of physical objects or things embedded with electronics,software,sensors and network connectivity which enables these objects to collect and exchange data  | 1 |
|  | E) | Email System comprises of following components* Mailer
* Mail Server
* Mailbox

Mailer:It is also called mail program,mail application or mail client .It allows us to manage ,read and compose emailMail Server:The function of mail Server is to receive ,store and deliever the email.It is a must for mail server to be running all the time because if it crashes or is down,email can be lostMailboxes :Mailboxes is generally a folder that contains emails and information about them. | 2 |
|  | F) | IPV4 Internet is protocol version 4 and IP6 is Internet protocol version 6IPv4 is 32 bit and IPv6 is 128 bitIPv6 is still in transition phase and it will expected to replace IPV4 | 2 |
|  | G) | Expand the following termsi)NFC (Near Field Communication) ii)IMAP (Internet Message Access Protocol)  iii)CDMA(code division multiple access)iv)MAC(Media Access Control)  v)VoIP (Voice Over Internet Protocol) vi)URL(Uniform resourse locator) |  1/2×6=3 |
|  | H) | a) A  E D B C b)Building Bc) i)Hub/Switch is placed in each buildingii)Repeater is placed between D TO Ad)i)Satellite Communicationii)WAN  | 1+1+1+1 |
| **SECTION C** |
| Q4 | A) | I)django-admin startproject <projectname> | 1 |
|  | B) | iii)Delete | 1 |
|  | C) | NULL value means empty value | 1 |
|  | D) | Char is fixed length width but varchar is variable length width | 1 |
|  | C) | i)Primary key is the key which uniquely identifies a tuple but foreign key is the key which takes reference from primary keyii)There is only one primary key in a table but there can be multiple foreign key on a tableiii)Primary key is not NULL but Null can be allowed in foreign key iv)primary key must be unique but duplicate values are not allowed in primary keyOrAlter command in DDL command but update command is DML CommandAlter command is used to add,modify and delete a column from the table and update command is used to make changes in the record of the table | 1+1 |
|  | D) | 1)HTTP Get Request2)HTTP Post Request1 marks for each type of correct explanation | 1+1 |
|  | E) | i)1200ii)4iii)1050 70011501300 | 1+1+1 |
|  | F) | i)Select PNAME, PRICE \* QTY from ITEMS where Price>100 ii)Select comp,city from company where ID IN(‘T001’ AND ‘T008’ iii)DELETE \* from ITEMS where year(MDATE)<2007. iv)Update ITEMS Set QTY=QTY+20 where Items in (‘soap’,’paste) | 1+1+1+1 |
| **SECTION D** |
| Q5 | A) | Passwods, Token, Biometrics, OTP | 2 |
|  | B) | Open Data: Data that can be freely available and republished | 1 |
|  | C) | Cyber crime encompasses a wide range of activities, but these can generally be broken into two categories: •Crimes that target computer networks or devices: Such types of crimes include viruses and denial-of-service (DoS) attacks. •Crimes that use computer networks to advance other criminal activities: These types of crimes include cyberstalking, phishing and fraud or identity theft. | 2 |
|  | D) | Fraudulent attempt to obtain sensitive information such as User name,Password and Credit card detail as trust worthy entity through electronic communication | 2 |
|  | E) | (i) Use a certified e-waste recycler. (ii) Visit civic institutions. Check with your local government, schools and universities for additional responsible recycling options. (iii) Explore retail options. (iv) Donate your electronics | 2 |
|  | F) | Complaint has to be lodged under IT Act.  | 1 |

KENDRIYA VIDYALAYA CHANDIGARH REGION

SAMPLE PAPER II 2019-20

COMPUTER SCIENCE(083) – XII

Time allowed : 3 hours Maximum Marks : 70

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **SECTION A** |  |
| 1 | a | Differentiate between List and Tuple. | 1 |
|  | b | What would be the Output?STRING="WELCOME NOTE”for S in range(0,7): print (STRING[S]) print (S,STRING) | 1 |
|  | c | Find error in the following code and correct code by rewriting it and underlining the corrections.X=int(“Enter value for x:”))for in range[0,11]: if x=y print (x+y) else : Print (x-y) | 2 |
|  | d | Which of the following are valid keywords in Python:  (i) Elif (ii) for (iii) While (iv) if | 1 |
|  | e | Convert the following for loop into while loop:for k in range(10,20,5): print (k) | 1 |
|  | f | Name the Python Library modules which need to be imported to invoke the following functions : (i) sqrt() (ii) randint()  | 1 |
|  | g | Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.if n==0 print(“zero”)elif n==1: print(“one”)elif n==2: print(“two”)else n==3: print(“three”) | 2 |
|  | h | Write the output of the following python code: def ChangeList():  L=[]  L1=[]  L2=[] for i in range(1,10): L.append(i) for i in range(10,1,2): L1.append(i) for i in range(len(L1)): L2.append(L1[i]+L[i]) L2.append(len(L)-len(L1)) print(L2) ChangeList() | 3 |
| 2 | a | Write a function to find factorial of a number using recursion.  | 2 |
|  | b | What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code ? Also specify the maximum values that can be assigned to each of the variables BEGIN and LAST. import random POINTS=[20,40,10,30,15]; POINTS=[30,50,20,40,45]; BEGIN=random.randint(1,3) LAST=random.randint(2,4) for C in range(BEGIN,LAST+1): print( POINTS[C],"#") (i) 20#50#30# (ii) 20#40#45# (iii) 50#20#40#45# (iv) 30#50#20#  | 2 |
|  | c |  Find and write the output of the following Python code:  Data = ["P",20,"R",10,"S",30]  Times = 0  Alpha = ""  Add = 0  for C in range(1,6,2): Times = Times + C Alpha = Alpha + Data[C-1]+"$"  Add = Add + Data[C]  print( Times,Add,Alpha) | 2 |
|  | d | Suppose L=[“abc”,[6,7,8],3,”mouse”] then L[ : :2] is i) [ “abc”,[6,7,8] ] ii) [ “abc “ , 3] iii) [3, ] iv) [“abc”,[6,7,8],3,”mouse”] | 1 |
|  | e | Write a method add, delete and display records using list implementation through stack | 3 |
|  | f | Differentiate Local variable with Global variable.  | 1 |
|  | g | Write a Python Program to plot line chart for values x=[1,2,3,4,5]y=[65,45,76,26,80] | 2 |
|  | h | Write a function in python to count number of lines starting with letter ‘K’ from text file ‘record.txt’  | 2 |
|  | i | Define a function display ( ) in python to print those records from binary file ‘db.dat’ of employees whose salary is >20000. [Each Record has fields Name & Salary separated by [ : ] ]  | 3 |
|  |  | **SECTION B** |  |
| 3 | a | Expand the following (i)PPP (ii) TDMA (iii)TCP/IP (iv) VOIP  | 2 |
|  | b | What is MAC address ? Give example.  | 2 |
|  | c | What is Cloud Computing? Write two advantages of Cloud Services. | 2 |
|  | d | Name the network tools used in the given situation 1. to troubleshoot internet connection problem
2. to see the IP address associated with a domain name
3. to look up registration record associated with a domain name
4. to test the speed of internet connection
 | 2 |
|  | e | Define the terms i) Cladding ii) attenuation iii) Telnet  | 3 |
|  | g |  ABC company is planning to set up their new offices in India with its hub at Hyderabad . As a Network advisor ,understand their requirements and suggest to them best solution.  Block to Block distance (in Meters):

|  |  |  |
| --- | --- | --- |
| Block From | Block | Distance |
| Human Resource | Conference | 60 |
| Human Resource  | Finance  | 60 |
| Conference  | Finance |  |

  Expected Number of Computer installed in each building block:

|  |  |
| --- | --- |
| Block | Computer |
| Human Resource | 125 |
| Finace | 25 |
| Confrence | 60 |

1. What is the most suitable block to install server?
2. What will be the best possible connectivity out of the following to connect its new office in Bengaluru

With its London-based office ?i)Infrared ii)Satellite iii) Ethernet Cable  iii) Which of the following devices will you suggest to connect each computer in each of the above blocks? i) Gateway ii) Switch iii) Modem  iv) Write the name of any two popular Open Source Software which are used as Operating Systems. | 4 |
|  |  | **SECTION C** |  |
| 4 | a | What is the command to install Django?  | 1 |
|  | b | What is the difference between between GET and POST method?  | 2 |
|  | c | What is NULL Value ?  | 1 |
|  | d | Write python-mysql connectivity to retrieve all the data of table student | 2 |
|  | e | Differentiate between Degree and Cardinality. | 2 |
|  | f | In a Bank’s database, there are two tables ‘Customer’ and ‘Transaction’ as shown below.  Table : Customer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Acc\_No  | Cust\_Name  | Cust\_City  | Cust\_Phone  | Open\_Bal  |
| 2101001  | Sunita  | Ambala  | 9710557614  | 10000  |
| 2201002  | Sandhya  | Patna  | 8223545233  | 15000  |
| 2301003  | Vivek  | New Delhi  | 9972136576  | 13000  |
| 2401004  | Meena  | New Delhi  | 9321305453  | 10000  |

  Table :Transaction

|  |  |  |  |
| --- | --- | --- | --- |
| Trans\_Id  | Acc\_No  | Transaction\_Type  | Amount  |
| Tr001  | 2301003  | Credit  | 15000  |
| Tr002  | 2201002  | Credit  | 20000  |
| Tr003  | 2101001  | Debit  | 3500  |
| Tr004  | 2301003  | Credit  | 26000  |
| Tr005  | 2301003  | Credit  | 24000  |
|  |

 | 6 |
|  | 1 | Write a query to display customer’s name who has withdrawn the money. |  |
|  | 2 | Write a query to display customer’s name along with their transaction details.  |  |
|  | 3 | Write a query to display customer’s name who have not done any transaction yet. |  |
|  | 4 | How many rows and column will be there in the Cartesian product of the above given tables. Also mention the degree and cardinality of the Cartesian product of the above given tables.  |  |
|  | 5 | Select Acc\_No, sum(Amount) from Customer c, Transaction t where c.Acc\_No=t.Acc\_No group by c.Acc\_No having Transaction\_Type="Credit"; |  |
|  | 6 | Discuss the significance of having clause with group by statement with suitable example.  |  |
|  |  | **SECTION D** |  |
| 5 | a | What are Intellectual Property Rights (IPR)?  | 1 |
|  | b | Differentiate between open source software and free software | 2 |
|  | c | What is online fraud? | 2 |
|  | d | What do you understand by plagiarism? | 2 |
|  | e | How does phishing happen? | 2 |
|  | f | if someone attacks your web site, who would you complain to ? | 1 |

KENDRIYA VIDYALAYA CHANDIGARH REGION

MARKING SCHEME –SAMPLE PAPER II 2019-20

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **SECTION A** |  |
| 1 | a | List in python represents a group of comma separated values of any datatype between square brackets. eg [“neha”,42,12.56]Tuples are represents a group of comma separated values of any datatype within parentheses. eg ( 1,2,3,4,5) | 1 |
|  | b | WELCOME6 WELCOMENOTE1 mark for correct output | 1 |
|  | c | **x**=int(**input(**“Enter value for x:”))for **y** in range**(**0,11**)**: if x**==**y **:** print ( x+y) else : **p**rint ( x-y )2 Marks for removal of all errors (1/2 Marks for each corrected line) | 2 |
|  | d | valid keywords in Python:  (i) ​for (iv) if1/2 Marks for each corrected | 1 |
|  | e | 1 mark for complete correct while conversion (1/2 for partial corrected loop) | 1 |
|  | f | (i) math (ii) random1/2 mark for each option | 1 |
|  | g |  n=0if n==0: print(“zero”)elif n==1: print(“one”)elif n==2: print(“two”)else : print(“three”)2 Marks for removal of all errors (1/2 Marks for each corrected line) | 2 |
|  | h | [11, 10, 9, 8, 7, 4] (3 marks for correct output. Partial marking can also be given) | 3 |
| 2 | a | 1 mark for correct logic ½ mark for correct if statement and ½ mark for writing recursive call  | 2 |
|  | b | (ii) 20#40#45#(iii) 50#20#40#45#Minimum value for BEGIN:1  Minimum value for LAST:2 (1 Mark for writing the correct options)    (½ Mark for writing each correct Minimum value of BEGIN AND LAST)  | 2 |
|  | c | 1 20 P$4 30 P$R$9 60 P$R$S$(2 marks for correct output. ) | 2 |
|  | d | ['abc', 3](1 mark for correct answer) | 1 |
|  | e | s=[]  c=’y’ while( c==’y’): print(“ 1 for Push”) print(“ 2 for Pop”) print(“ 3 for display”) choice=int(input(“Enter your choice”)) if(choice==1): a=int(input(“Enter a number”)) s.append(a) elif (choice==2): if s==[ ] : print(“Stack is empty”) else: print(“Deleted element is :” s.pop()) elif (choice==3): l=len(s) for i in range(l-1,-1,-1): print(s[i]) else: print (“Wrong input”) c=input(“do you want to continue y or n ”) | 3 |
|  | f | 1/2 mark for each correct definition | 1 |
|  | g | import matplotlib.pyplot as plt import numpy as np x=[1,2,3,4,5] y=[65,45,76,26,80] plt.plot(x,y) plt.xlabel("X axis") plt.ylabel("Y axis ") plt.title("Graph for x=[1,2,3,4,5] y=[65,45,76,26,80]") plt.show()2 mark for correct answer | 2 |
|  | h | f=open(“record.txt”,”r”) (1+1=2) lines=0 l=f.readlines() for i in I: if i[0]==’K’ lines=lines+1 print(“No of Lines:”,lines)2 mark for correct answer | 2 |
|  | i | def display():  i=open(“db.dat” , rb+”) x=i.readlines() while (x): I=x.split(‘:’) if I[2]>20000: print(x) x=i.readlines() i.close() 3 mark for correct answer, partial marks can be given. | 3 |
|  |  | **SECTION B** |  |
| 3 | a | PPP: Point to Point ProtocolTDMA:Time division multiple AccessTCP/IP: Transmission Control Protocol/Internet Protocol | 2 |
|  |  | VOIP:Voice Over Internet Protocol½ marks for each correct expansion |  |
|  | b | Medium access control Physical Address of NIC Card assigned by manufacturer stored on ROM. (1+1=2)  e.g 00:0d:83:b1:c0:8e 1 mark for correct definition and 1 mark for example | 2 |
|  | c | Cloud computing is an internet based new age computer technology. It is the next stage technology that uses the cloud to provide the services whenever and wherever the user needs it. It provides a method to access several servers worldwide Two advantages of Cloud Computing:  i) Data backup and storage ii) Powerful server capability  2 marks for correct explanation. | 2 |
|  | d | 1. ping
2. nslookup
3. whois
4. speedtest.net

½ mark for each correct answer | 2 |
|  | e | Cladding: Layer of glass surrounded the Centre fibre of glass in fibre optics cable. Attenuation: Degeneration of signal over a distance on network cable.Telnet: Service to log in remotely on any computer over network. ½ mark for each correct line (Max 2 marks for correct answer) | 3 |
|  | g |  i)Human Resource Block ii) Ethernet Cable iii) Switchiv) Linux and Open Solaris1 mark for each correct answer | 4 |
|  |  | **SECTION C** |  |
| 4 | a |  pip install django ( 1 mark for correct answer)  | 1 |
|  | b | 1 mark for each correct answer | 2 |
|  | c | NULL value is value in table with blank field  | 1 |
|  | d | import mysql.connector mydb=mysql.connector.connect(user="root",host="localhost",passwd="123",database="inservice") mycursor=mydb.cursor() mycursor.execute("select \* from student") for x in mycursor:  print(x)2 marks for correct statements | 2 |
|  | e | 2 marks for correct difference  | 2 |
|  | f1 | Select cust\_name from customer c,transaction t where c.Acc\_No=t.Acc\_No and Transaction\_Type= "Debit";  | 1 |
|  | 2 | Select cust\_name, t.\* from customer c, transaction t where c.Acc\_No = t.Acc\_No; | 1 |
|  | 3 | Select cust\_name from customer c,transaction t where c.Acc\_No!=t.Acc\_No;  | 1 |
|  | 4 | Cartesian ProductNumber of Rows: 20 Number of Columns: 9 Degree: 9 Cardinality: 20  | 1 |
|  | 5 | 2301003 65000 2201002 20000  | 1 |
|  | 6 | select Acc\_No, sum(Amount) from Customer c, Transaction t where c.Acc\_No=t.Acc\_No group by c.Acc\_No having Transaction\_Type="Credit";  | 1 |
|  |  | **SECTION D** |  |
| 5 | a | IPR is a general term covering patents, copyright, trademark, industrial designs, geographical indications, layout design of integrated circuits, undisclosed information (trade secrets) and new plant varieties.1 mark for correct definition | 1 |
|  | b | 1 mark for each correct definition | 2 |
|  | c | Fraud committed using the internet call online fraud. Online fraud my occur in many forms such as non-delivered goods, non-existent companies, stealing information, fraudulent payments etc. | 2 |
|  | d | 2 marks for correct answer | 2 |
|  | e | Phishing is typically carried out by email spoofing or instant messaging and it often directs users to enter personal information at a fake website, the look and feel of which is identical to the legitimate one and the only difference is the URL of the website in question | 2 |
|  | f | Complaint has to be lodged under IT Act | 1 |

SAMPLE PAPER III

SUBJECT COMPUTER SCIENCE (XII-083)

Time 3hrs M.M. 70

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | a) | Which of the following is valid operator in python : I ) % 2) \*\*= 3) < 4) not  | 1 |
|  | b) | Write the type of tokens from the following : 1) for 2)\_fn  | 1 |
|  | c) | Nam the python library modules which need to be imported to invoke the following functions: 1) sin() 2) randint()  | 1 |
|  | d)  | Rewrite the following code in python after removing all syntax error(s).underline each correction done in code.O,P= 10=20for j n range[O,P]: print(p\*4)T= p+5Print(T)  | 2 |
|  | e) | Find and write the output:def solve(s1): k=len(s1) s2='' for j in range (0,k): if s1[j].isupper(): s2=s2+s1[j+1].lower() elif s1[j].islower(): s2=s2+s1[j-1].upper() else: s2=s2+'@' print(s2)solve('WeLcoMe') | 2 |
|  | f) | Find and write the output of the following python code:def update(p,q=10): p=p+q q=p-q print(p,”#”,q) return (p)p1=40q1=20p1=update(p1,q1)print(r,”@”,q1)q1=update(q1) | 3 |
|  | g)  | What possible outputs are expected to be displayed on the screen at the time of execution of the program from the following code? Also specify the minimum and maximum values that can be assigned to the variable c.import random temp=[10,20,30,40,50,60] c=random.randint(0,4) for I in range(0, c): print(temp[I],'#',end='') (i) #10#20 (ii) 10#20#30#40#50# (iii). 10#20#30# (iv) 50#60# | 2 |
| 2 | a | What do you understand by eval()? | 1 |
|  | b | Which is the correct form of declaration of dictionary? 1. Day=(1;’mon’, 2;’tue’, 3:’wed’)
2. Day=[1:’ONE’, 2:’TWO’,3:’THREE’]
3. Day={1:’APPLE’, 2:’ORANGE’, 3:’GRAPES’}
4. Day={1’green’, 2’red’,3’blue’]
 | 1 |
|  | c | Identify the valid declaration of L:L = [1, 23, ‘hi’, 6]1. List
2. Dictionary
3. Array
4. Tuple
 | 1 |
|  | d | Find and write the output of the following python code: x=['5 3 2 1']y=['8 7 9 10']z=y+xprint(z) | 1 |
|  | e | Find and write the output of the following python code :def come(n): n=n+10 m=5+n n,m=m,n+m return n,mP=come(6)print(P) | 1 |
|  | f | What do you understand by UDF? What is the need of it ? | 2 |
|  | g | A bar chart is drawn(using pyplot) to represent sales data of various models of MOBILES, for a month. Write a appropriate statement in python to provide labels MONTH-JUNE and SALES DONE to x and y axis respectively.  OR. Give the output from the given python code:import matplotlib.pyplot as pltimport numpy as npx = np.arange(1, 5)plt.plot(x, x\*1.5, label='Normal')plt.plot(x, x\*3.0, label='Fast')plt.plot(x, x/3.0, label='Slow')plt.legend()plt.show() | 2 |
|  | h | Write a function in python to count the number of vowels in a text file data.txt? OR. Write a function DISPLAY() in python to read and count the word ‘THIS’ from “NOVEL.TXT”.  | 2 |
|  | i | Write a function “perfect()” that determines if parameter number is a perfect number. Use this function in a program that determines and prints all the perfect numbers between 1 and 100.[An integer number is said to be “perfect number” if its factors, including 1(but not the number itself), sum to the number. E.g., 6 is a perfect number because 6=1+2+3]. OR. Differentiate between Bubble shot and Insertion soRt. Which one is better?  | 3 |
|  | j | Write a function in python, **AddQ(Arr)** and **RemoveQ(Arr)** for performing insertion and deletion operations in a Queue. **Arr** is the list used for implementing queue and **data** is the value to be inserted.  OR. Write a function in python, **SPush(package)** and **SPop(package)** to add a new Package and delete a Package from a List of Package Description, considering them to act as push and pop operations of the Stack data structure. | 4 |
|  |  |  **SECTION-B** |  |
| Q.3 | a | ………………….. is an example of cloud.  | 1 |
|  | b | ………………….. is a network of physical objects embedded with electronics, software, sensors and network connectivity.  | 1 |
|  | c | ………………….. is a device to connect two dissimilar network. | 1 |
|  | d | ………………….. describes the measuring unit of data transfer rate . | 1 |
|  | e | Give the full forms of the following :1. SMTP
2. SIM
3. Lifi
4. GPRS
 | 2 |
|  | f | How many pair of wires are there in a twisted pair cable (Ethernet)? What is the name of the port, which is used to connect Ethernet cable to a computer or a laptop?  | 2 |
|  | g | Identify the type of cyber crime for the following situations:1. A person complains that Rs. 4.25 lacs have been fraudulently stolen from his/her account online via some online transactions in two days using NET BANKING.
2. A person complains that his/her debit/credit card is safe with him still somebody has done shopping /ATM transaction on this card.
3. A person complains that somebody has created a fake profile of Facebook and defaming his/her character with abusive comments and pictures.
 | 3 |
|  | h | Sharma Medicos Center has set up its new center in Dubai. It has four buildings as shown in the diagram given below:Distance between various building are as follows: As a network expert, provide the best possible answer for the following queries:1. Suggest a cable layout of connections between the buildings.
2. Suggest the most suitable place (i.e. buildings) to house the server of this

 organization.1. Suggest the placement of the following device with justification:
	* 1. a) Repeater b) Hub/Switch
2. Suggest a system (hardware/software) to prevent unauthorized access to or from the network.
 | 4 |
|  |  |  **SECTION-C** |  |
| Q4. | a | Which command is used to open the database?  | 1 |
|  | b | Which clause is used to sort the records of a table?  | 1 |
|  | c | Which command is used to delete the table?  | 1 |
|  | d | Which clause is used to remove the duplicating rows of the table? | 1 |
|  | e | Differentiate between Django GET and POST method.  | 2 |
|  | f | Define degree and cardinality. Based upon given table write degree and cardinality. | 2 |
|  | g |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **RxID** | **DrugID** | **DrugName** | **Price** | **PharmacyName** | **PharmacyLocation** |  |
|  |  | R1000 | 5476 | Amlodipine | 100.00 | Rx Pharmacy | Pitampura, Delhi |  |
|  |  | R1001 | 2345 | Paracetamol | 15.00 |  | Raj Medicos | Bahadurgarh, Haryana |  |
|  |  | R1002 | 1236 | Nebistar | 60.00 |  | MyChemist | Rajouri Garden, Delhi |  |
|  |  | R1003 | 6512 | VitaPlus | 150.00 | MyChemist | Gurgaon,Haryana |  |
|  |  | R1004 | 5631 | Levocitrezine | 110.00 | RxPharmacy | South Extension,Delhi |  |

Write commands in SQL for (i) to (iv):1. To increase the price of “Amlodipine” by 50.
2. To display all those medicines whose price is in the range 100 to 150.
3. To display the Maximum price offered by pharmacy located in “Gurgaon”

 IV. To display sum of price for each PharmacyName having more than 1 drug.VI To display Maximum and Minimum price**Write the output(s) produced by executing the following queries:**1. SELECT RxID, Price from PharmaDB where PharmacyNa IN (“Rx Parmacy”, “Raj Medicos”);
2. SELECT PharmacyName, COUNT(\*) FROM PharmaDB GROUP BY PHARMACY NAME
 | 7 |
|  |  | **SECTION-D** |  |
| 5 | a | When net is showing the ads related to products you have bought earlier, phenomenon is known as -----------. | 1 |
|  | b | As a citizen of India, what advice you should give to others for e-waste disposal?  | 1 |
|  | c | What are the two methods to avoid illegal downloading? | 2 |
|  | d | Define the term Phishing and Vishing ?  | 2 |
|  | e | Stealing someone’s intellectual work and representing it as your own known as:-(i) phishing(ii) scam(iii) plagiarism(iv) intellectual property | 2 |
|  | f | What are intellectual property rights? Why should intellectual property rights be protected? | 2 |
|  |  |  |  |

**END OF THE THE PAPER**

MARKING SCHEME SAMPLE PAPER SESSION ENDING XII CS

Time 3hrs M.M. 70

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | a) | Which of the following is valid operator in python : I ) % 2) AND 3) => 4) \*\*= | 1 |
| ANS |  | % , \*\*= |  |
|  | b) | Write the type of tokens from the following : 1) for 2)\_fn  | 1 |
| ANS |  | CONTROL FLOW , IDENTIFIER |  |
|  | c) | Nam the python library modules which need to be imported to invoke the following functions: 1) sin() 2) randint()  | 1 |
| ANS |  | MATH , RANDOM |  |
|  | d)  | Rewrite the following code in python after removing all syntax error(s).underline each correction done in code.O,P= 10=20for j n range[O,P]: print(p\*4)T= p+5Print(T)  | 2 |
| ANS |  | O,P= 10,20for j n range(O,P): print(P\*4)T= P+5Print(T) |  |
|  | e) | Find and write the output:def solve(s1): k=len(s1) s2=” “ for j in range (0,k): if (s1[i].isupper()) s2=s2+s1[j+1].lower() elif s1[i].islower() s2=s2+s1[j-1].upper() else: s2=s2+”@” print(s2)solve(“WeLcoMe”) | 2 |
| ANS |  | eWcLCeM  |  |
|  | f) | Find and write the output of the following python code:def update(p,q=10): p=p+q q=p-q print(p,'#',q) return (p)p1=40q1=20p1=update(p1,q1)print(p1,'@',q1)q1=update(q1) | 3 |
| ANS |  | 60 # 4060 @ 2030 # 20 |  |
|  | g)  | What possible outputs are expected to be displayed on the screen at the time of execution of the program from the following code? Also specify the minimum and maximum values that can be assigned to the variable c.import random temp=[10,20,30,40,50,60] c=random.randint(0,4) for I in range(0, c): print(temp[i],’:’,end=’#‘)(i) #10#20 (ii) 10#20#30#40#50# (iii). 10#20#30# (iv) 50#60# | 2 |
| ANS |  | iii) ONLY MIN=0, MAX=3  |  |
| 2 | a | What do you understand by eval()?Give example. | 1 |
| ANS |  | **eval()** evaluates the passed string as a **Python** expression and returns the result. For example, **eval**("1 + 1") interprets and executes the expression "1 + 1" and returns the result (2) |  |
|  | b | Which is the correct form of declaration of dictionary? 1. Day=(1;’mon’, 2;’tue’, 3:’wed’)
2. Day=[1:’ONE’, 2:’TWO’,3:’THREE’]
3. Day={1:’APPLE’, 2:’ORANGE’, 3:’GRAPES’}
4. Day={1’green’, 2’red’,3’blue’]
 | 1 |
| ANS |  | 1. Day={1:’APPLE’, 2:’ORANGE’, 3:’GRAPES’}
 |  |
|  | c | Identify the valid declaration of L:L = [1, 23, ‘hi’, 6]1. List
2. Dictionary
3. Array
4. Tuple
 | 1 |
| ANS |  | LIST |  |
|  | d | x=['5 3 2 1']y=['8 7 9 10']z=y+xprint(z) | 1 |
| ANS |  | ['8 7 9 10', '5 3 2 1'] |  |
|  | e | Find and write the output of the following python code :def come(n): n=n+10 m=5+n n,m=m,n+m return n,mP=come(6)print(P) | 1 |
| ANS |  | (21, 37) |  |
|  | f | What do you understand by UDF? What is the need of it ? | 2 |
| ANS |  | 1 MARKS FOR USER DEFINE FUNCTION AND 1 MARKS FOR NEED OF IT |  |
|  | g | A bar chart is drawn(using pyplot) to represent sales data of various models of MOBILES, for a month. Write a appropriate statement in python to provide labels MONTH-JUNE and SALES DONE to x and y axis respectively.  OR. Give the output from the given python code:import matplotlib.pyplot as pltimport numpy as npx = np.arange(1, 5)plt.plot(x, x\*1.5, label='Normal')plt.plot(x, x\*3.0, label='Fast')plt.plot(x, x/3.0, label='Slow')plt.legend()plt.show() | 2 |
| ANS |  | import matplotlib.pyplot as pltimport numpy as npmodel=(‘apple’,’samsung’,’K10’,’vivo’,’nokia’)y\_pos=np.arange(len(model))sale=[12000,12174,9000,11520,8060]plt.bar(y\_pos,sale,align=’center’,alpha=0.5)plt.xticks(y\_pos,model)plt.xlabel(‘Month-June’)plt.ylabel(‘Sale done’)plt.title(‘Sales Bar Graph’)plt.show()ORC:\Users\PC\Desktop\New folder\123.png |  |
|  | h | Write a function in python to count the number of vowels in a text file data.txt? OR. Write a function DISPLAY() in python to read and count the word ‘THIS’ from “NOVEL.TXT”.  | 2 |
| ANS |  | f=open('data.txt','r')c=0for k in f.read(): if k=='a' or k=='e' or k=='i' or k=='o' or k=='u': print (k) c=c+1print (c)f.close()**OR**f=open('NOVEL.txt','r')c=0for k in f.readlines(): for r in k.split(): if r=="THIS" or r=="this": print(k) c=c+1print(c)f.close() |  |
|  | i | Write a function “perfect()” that determines if parameter number is a perfect number. Use this function in a program that determines and prints all the perfect numbers between 1 and 100.[An integer number is said to be “perfect number” if its factors, including 1(but not the number itself), sum to the number. E.g., 6 is a perfect number because 6=1+2+3]. OR. Differentiate between Bubble shot and Insertion sort. Which one is better?  | 3 |
| ANS |  | def perfect(n): sum = 0 for i in range(1,n): if n%i == 0: sum = sum + i if sum == n: return True else: return False for i in range(1,1001): if perfect(i): print(i)OR2 MARKS FOR DIFFERENCE AND 1 MARKS FOR DEFINE THE BEST |  |
|  | j | Write a function in python, **AddQ(Arr)** and **RemoveQ(Arr)** for performing insertion and deletion operations in a Queue. **Arr** is the list used for implementing queue and **data** is the value to be inserted.  OR. Write a function in python, S**Push(package)** and S**Pop(package)** to add a new Package and delete a Package from a List of Package Description, considering them to act as push and pop operations of the Stack data structure. | 4 |
|  |  | def AddQ(Arr): data=int(input("enter data to be inserted: ")) Arr.append(data)def RemoveQ(Arr): if (Arr==[]): print( "Queue empty") else: print ("Deleted element is: ",Arr[0]) del(Arr[0])**OR**def SPush(Package): a=int(input("enter package title : ")) Package.append(a)def SPop(Package): if (Package==[]): print( "Stack empty") else: print ("Deleted element:",Package.pop()) |  |
|  |  |  **SECTION-B** |  |
| Q.3 | a | ………………….. is an example of cloud.  | 1 |
| ANS |  | Google Drive or any other correct example |  |
|  | b | ………………….. is a network of physical objects embedded with electronics, software, sensors and network connectivity.  | 1 |
| ANS |  | The internet of things **OR** Internet |  |
|  | c | ………………….. is a device to connect two dissimilar network. | 1 |
| ANS |  | Router |  |
|  | d | ………………….. describes the measuring unit of data transfer rate .  | 1 |
| ANS |  | megabit per second |  |
|  | e | Give the full forms of the following :1. SMTP
2. SIM
3. Lifi
4. GPRS
 | 2 |
| ANS |  | SIMPLE MAIL TRANSFER PROTOCOLSUBSCRIBER IDENTITY MODULE OR SUBSCRIBER IDENTIFICATION MODULE LIGHT FIDILITYGENERAL PACKET RADIO SERVICES |  |
|  | f | How many pair of wires are there in a twisted pair cable (Ethernet)? What is the name of the port, which is used to connect Ethernet cable to a computer or a laptop?  | 2 |
| ANS |  | TWO INSULATED COPPER WIRES , ETHERNET PORT |  |
|  | g | Identify the type of cyber crime for the following situations:1. A person complains that Rs. 4.25 lacs have been fraudulently stolen from his/her account online via some online transactions in two days using NET BANKING.
2. A person complains that his/her debit/credit card is safe with him still somebody has done shopping /ATM transaction on this card.
3. A person complains that somebody has created a fake profile of Facebook and defaming his/her character with abusive comments and pictures.
 | 3 |
| ANS |  | (i) Bank Fraud(ii) Identity Theft(iii) Cyber Stalking |  |
|  | h | SHARMA Medicos Center has set up its new center in Dubai. It has four buildings as shown in the diagram given below:Distance between various building are as follows: As a network expert, provide the best possible answer for the following queries:1. Suggest a cable layout of connections between the buildings.
2. Suggest the most suitable place (i.e. buildings) to house the server of this

 organization.iii) Suggest the placement of the following device with justification: a) Repeater b) Hub/Switchiv) Suggest a system (hardware/software) to prevent unauthorized access to or from the network.  | 4 |
| ANS |  | 1 MARKS FOR EACH CORRECT ANS |  |
|  |  |  **SECTION-C** |  |
| 4. | a | Which command is used to open the database “SCHOOL”?  | 1 |
| ANS |  | USE SCHOOL |  |
|  | b | Which clause is used to sort the records of a table?  | 1 |
| ANS |  | ORDER BY |  |
|  | c | Which clause is used to delete the table?  | 1 |
| ANS |  | DROP |  |
|  | d | Which clause is used to remove the duplicating rows of the table? | 1 |
| ANS |  | Distinct |  |
|  | e | Differentiate between Django GET and POST method.  | 2 |
| ANS |  | GET and POST. GET and POST are the only HTTP methods to use when dealing with forms. Django's login form is returned using the POST method, in which the browser bundles up the form data, encodes it for transmission, sends it to the server, and then receives back its response. Both of these are dictionary-like objects that give you access to GET and POST data. POST data generally is submitted from an HTML <form> , while GET data can come from a <form> or the query string in the page's URL. |  |
|  | f | Define degree and cardinality. Based upon given table write degree and cardinality. | 2 |
| ANS |  | No of attributes called degree and no. of tuples called cardinality.4 degree , 5 cardinality |  |
|  | g |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **RxID** | **DrugID** | **DrugName** | **Price** | **PharmacyName** | **PharmacyLocation** |  |
|  |  | R1000 | 5476 | Amlodipine | 100.00 | Rx Pharmacy | Pitampura, Delhi |  |
|  |  | R1001 | 2345 | Paracetamol | 15.00 |  | Raj Medicos | Bahadurgarh, Haryana |  |
|  |  | R1002 | 1236 | Nebistar | 60.00 |  | MyChemist | Rajouri Garden, Delhi |  |
|  |  | R1003 | 6512 | VitaPlus | 150.00 | MyChemist | Gurgaon,Haryana |  |
|  |  | R1004 | 5631 | Levocitrezine | 110.00 | RxPharmacy | South Extension,Delhi |  |

**TABLE NAME : PHARMADB**Write commands in SQL for (i) to (iv):1. To increase the price of “Amlodipine” by 50.
2. To display all those medicines whose price is in the range 100 to 150.
3. To display the Maximum price offered by pharmacy located in “Gurgaon”

 IV. To display sum of price for each PharmacyName having more than 1 drug.VI To display Average price**Write the output(s) produced by executing the following queries:**1. SELECT RxID, Price from PharmaDB where PharmacyNa IN (“Rx Parmacy”, “Raj Medicos”);
2. SELECT PharmacyName, COUNT(\*) FROM PharmaDB GROUP BY PHARMACY NAME
 | 7 |
| ANS |  | 1. Update pharmadb set price =price+50
2. Select DrugName from Pharmadb where price>=100 and price<=150
3. Select Max(price) form pharmadb where pharmacylocation like “Gurgaon%”
4. Select sum(price) from pharmadb group by pharmacyname having count(\*)>1
5. Select avg(Price) from pahramadb
6. R1000 100

 R001 15R1004 1101. Rx Pharmacy 2

Raj Medicos 1MyChemist 2 |  |
|  |  | **SECTION-D** |  |
| 5 | a | When net is showing the ads related to products you have bought earlier, phenomenon is known as -----------. | 1 |
| ANS |  | HeadOn |  |
|  | b | As a citizen of India, what advice you should give to others for e-waste disposal?  | 1 |
| ANS |  | As a citizen of india , We can advice the following principle of waste management:Reduce , Reuse and Recycle. |  |
|  | c | What are the two methods to avoid illegal downloading? | 2 |
| ANS |  | Legal & Enforcement, Cooperation |  |
|  | d | Define the term Phishing and Vishing ?  | 2 |
| ANS |  | Voice **phishing**, or “**vishing**”, works the same way as a spear **phishing** attack (by using personalized information to leverage trust), but uses a different channel: the telephone. The scammer calls an individual, pretending to be calling for a trusted organization (like the bank or your credit card company). |  |
|  | e | Stealing someone’s intellectual work and representing it as your own known as:-(i) phishing(ii) scam(iii) plagiarism(iv) intellectual property | 2 |
| ANS |  | phishing |  |
|  | f | What are intellectual property rights? Why should intellectual property rights be protected? | 2 |
| ANS |  | Intellectual property rights are the rights given to persons over the creations of their minds. They usually give the creator an exclusive right over the use of his/her creation for a certain period of time. |  |