

KENDRIYA VIDYALAYA SANGATHAN

AHEDABAD CLUSTER



STUDENT SUPPORT MATERIAL

CLASS XII

SUBJECT - COMPUTER SCIENCE (083)

SESSION - 2020-21

**STUDENT SUPPORT MATERIAL FOR 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 Minimum Learning Skill of the 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.....

Class: XII Session: 2020-21
Computer Science (083)
Sample Question Paper (Theory)

Topic-wise mark distribution pattern

UNIT	TOPIC	Part A		Part B			Marks
		Section I (any 15) 1 mark	Section II 4 mark (1 mark each)	Section I 2 mark	Section II 3 mark	Section III 5 mark	
I	PYTHON REVISION	8		3 1-Expression evaluate 2-Error finding 3- Output random			40
	FUNCTION			2 1-Theory choice 2-output	1 (prg)		
	FILE HANDLING	1	1 (csv file)		1 (prg text file with choice)	1 (prg binary file with choice)	
	PYTHON LIB	1					
	DATA STRUCTURE	-			1 (prg push/pop)		
II	COMPUTER NETWORK	5		2		1	10
III	DATABSE CONCEPT	3	1	1	1	1	20
	SQL COMMANDS	3		1			
	SQL-Python	-		1			
		15	8	20	12	15	70

Note : This blue print is designed on the basis of Sample Question Paper provided by CBSE in Sept. 2020.

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S. No.	UNIT	TOPIC/CHAPTER	Page No.
1.	I – Programming & Computational Thinking-2 (Weightage – 40 Marks)	Python Revision Tour – I & II	1 to 16
		Working with Functions Using Python Libraries	17 to 24
		File Handling	25 to 70
		Data Structures – I : Linear Lists Data Structures – II : Stacks	71 to 74
2.	II – Computer Networks (Weightage – 10 Marks)	Computer Networks I & II	75 to 90
3.	III – Data Management-2 (Weightage – 20 Marks)	MySQL SQL Revision Tour More on SQL	91 to 94
		Interface Python with MySQL	95 to 99
5.	Sample Papers (with solution based on CBSE Sample Paper)	Complete Syllabus 2020-21	100 to 145

REVIEW OF PYTHON BASICS

SN	QUESTIONS/ANSWERS	MARKS ALLOTE D
Q1	What is None literal in Python?	1
Ans	Python has one special literal called "None". It is used to indicate something that has not yet been created. It is a legal empty value in Python.	
Q2	Can List be used as keys of a dictionary?	1
Ans	No, List can't be used as keys of dictionary because they are mutable. And a python dictionary can have only keys of immutable types	
Q3	Name the Python Library modules which need to be imported to invoke the following functions: (i) floor() (ii) randn()	1
Ans	(i) math (ii) random	
Q4	What type of objects can be used as keys in dictionaries?	1
Ans	Only immutable type objects (i.e. Numbers, Strings, Tuples) can be used as keys in dictionaries.	
Q5	What are two ways to remove something from a list? Write syntax only for both.	1
Ans	<ul style="list-style-type: none"> • pop() method to remove single element using index • remove() method to remove single element using value 	
Q6	Identify and write the name of the module to which the following functions belong: (i) ceil() (ii) dump()	1
Ans	(i) ceil() – math module (ii) dump() – json module or pickle	
Q7	Write the type of tokens from the following: (i) if (ii) roll_no	1
Ans	(i) Key word (ii) Identifier	
Q8	Which of the following is a valid arithmetic operator in Python: (i) // (ii) ? (iii) < (iv) and	1
Ans	(i) //	
Q9	Which command is used to convert text into integer value?	1
Ans	int()	
Q10	Which is the correct form of declaration of dictionary? (i) Day={'1':'monday',2:'tuesday',3:'wednesday'} (ii) Day=(1:'monday',2:'tuesday',3:'wednesday') (iii) Day=[1:'monday',2:'tuesday',3:'wednesday'] (iv) Day={1'monday',2'tuesday',3'wednesday'}	1
Ans	(i) Day={'1':'monday',2:'tuesday',3:'wednesday'}	
Q11	Identify the valid declaration of L: L = [1, 23, 'hi', 6] (i) List, (ii) Dictionary, (iii) Array, (iv) Tuple	1

Ans	(i) List	
Q12	What is a python variable? Identify the variables that are invalid and state the reason Class, do, while, 4d, a+	2
Ans	- A variable in python is a container to store data values. a) do, while are invalid because they are python keyword b) 4d is invalid because the name can't be started with a digit. c) a+ is also not valid as no special symbol can be used in name except underscore (_).	
Q13	Predict the output <pre>for i in range(1, 10, 3): print(i)</pre>	2
Ans	1 4 7	
Q14	Rewrite the code after correcting errors: - <pre>if N=>0 print(odd) else Print("even")</pre>	2
Ans	<pre>if N>=0: print("odd") else: print("even")</pre>	
Q15	What problem occurs with the following code <pre>X=40 while X< 50 : print(X)</pre>	2
Ans	The given code does not have the incrementing value of X, thus the loop becomes endless.	
Q16	What will be the output of the following code snippet? <pre>values =[] for i in range (1,4): values.append(i) print(values)</pre>	2
Ans	[1] [1,2] [1,2,3]	
Q17	Find the error in following code. State the reason of the error. <pre>aLst = { 'a':1 , ' b':2, 'c':3 } print (aLst['a','b'])</pre>	2
Ans	The above code will produce KeyError , the reason being that there is no key same as the list ['a','b'] in dictionary aLst.	
Q18	Find output of the following code fragment.	2

	<pre>x="hello world" print(x[:2],x[:-2],x[-2:]) print(x[6],x[2:4]) print(x[2:-3],x[-4:-2])</pre>	
Ans	<pre>he hello wor ld w ll llo wo or</pre>	
Q19	<p>Rewrite the following programs after removing syntactical errors:</p> <pre>for=20 for1=50: for3=for+for1+for2 print(for3)</pre>	2
Ans	<pre>f=20 #(as for is a keyword in python) for1 = 50 #(: can not be used here) for3 = f+for1 #(for2 not defined) print(for3)</pre>	
Q20	<p>Observe the following Python code very carefully and rewrite it after removing all syntactical errors with each correction underlined.</p> <pre>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()</pre>	2
Ans	<pre><u>def</u> execmain(): x = input("Enter a number:") if (abs(x)<u>==</u> x): print("You entered a positive number"<u>)</u> else: <u>x</u> * = -1 print("Number made positive:",x) execmain()</pre>	
Q21	<p>Find the output of the following:</p> <pre>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</pre>	2
Ans	<pre>1 : 900 1900 2 : 2200 3200 3 : 3600 4600</pre>	

Q22	<p>Write the output of the following Python program code:</p> <pre>A = [10,12,15,17,20,30] for i in range(0,6): if (A[i] % 2 == 0): A[i] /= 2 elif (A[i] % 3 == 0): A[i] /= 3 elif (A[i] % 5 == 0): A[i] /= 5 for i in range(0,6): print(A[i],end= "#")</pre>	
Ans	<p>Output is: 5.0#6.0#5.0#17#10.0#15.0#</p>	
Q23	<p>What are the possible outcomes executed from the following code? Also, specify the maximum and minimum values that can be assigned to variable COUNT</p> <pre>import random TEXT = "CBSEONLINE" COUNT = random.randint(0,3) C=9 while TEXT[C] != 'L': print(TEXT[C]+TEXT[COUNT]+'*',end=" ") COUNT= COUNT + 1 C=C-1</pre> <p>1 EC* NB* IS* 2 NS* IE* LO* 3 ES* NE* IO* 4 LE* NO* ON*</p> <p style="text-align: right;">(2)</p>	
Ans	<p>The possible outcomes are: 1 and 3 Minimum value of count is 0 Maximum value of count is 3</p>	

WITH SOLUTION

PYTHON – REVISION TOUR

1	„Welcome“ is _____ literals
Ans.	string
2	\$ symbol can be used in naming an identifier (True/False)
Ans.	False
3	Write any 2 data types available in Python
Ans.	int, bool
4	„ Division by zero “ is an example of _____ error.
Ans.	Runtime Error
5	range(1,10) will return values in the range of _____ to _____
Ans.	1 to 9
6	randint(1,10) will return values in the range of _____ to _____
Ans.	1 to 10
7	<pre> "Computer Science"[0:6] = _____ "Computer Science"[3:10] = _____ "Computer Science"[::-1] = _____ "Computer Science"[-8:] = _____ </pre>
Ans.	<pre> "Computer Science"[0:6] = Comput "Computer Science"[3:10] = puter S "Computer Science"[::-1] = ecneicS retupmoC "Computer Science"[-8:] = Science </pre>
8	Output of : <code>print("Ok"*4 + "Done")</code>
Ans.	OkOkOkOkDone
9	Output of : <code>print(print("Why?"))</code>
Ans.	Why?
10	<p>Raj was working on application where he wanted to divide the two number (A and B) , he has written the expression as $C = A/B$, on execution he entered 30 and 7 and expected answer was 4 i.e. only integer part not in decimal, but the answer was 4.285 approx, help Raj to correct his expression and achieving the desired output.</p> <p>Correct Expression : _____</p>
Ans.	$C = A//B$

	Can you guess the output?
11	<code>C = -11%4 print(C)</code>
Ans.	1
12	Write 2 advantages and disadvantages of Python programming language
Ans.	Advantages 1) Easy to Use 2) Expressive Language Disadvantages
13	Identify the valid and Invalid identifiers names: <code>Emp-Code, _bonus, While, SrNo. , for, #count, Emp1, 123Go, Bond007</code>
Ans.	Valid: _bonus, While, Emp1, Bond007 Invalid : Emp-code, SrNo., for, #count, 123Go
14	Identify the type of literals for each: (i) 123 (ii) „Hello“ (iii) „Bye\nSee You“ (iv) „A“
Ans.	(i) Int (ii) String (iii) String (iv) String (v) Float (vi) Complex (vii) Int
15	What is the size of each string? (i) „Python“ (ii) „Learning@\nCS“
Ans.	(i) 6 (ii) 12 (iii) 5
16	Output of : (i) True + True = (ii) 100 + False = (iii) -1 + True =
Ans.	(i) 2 (ii) 100 (iii) 0 (iv) False

17	Output of (i) $2 * 7$ = _____ (ii) $2 ** 7$ = _____ (iii) $2 ** 2 ** 3$ = _____ (iv) $17 \% 20$ = _____ (v) $\text{not}(20 > 6)$ or $(19 > 7)$ and $(20 == 20)$ = _____
Ans.	(i) 14 (ii) 128 (iii) 256 (iv) 17 (v) True
18	Output of : $a, b, c = 20, 40, 60$ $b += 10$ $c += b$
Ans.	20 50 110
19	Write a program to enter 2 number and find sum and product
Ans.	<pre>n1 = int(input('Enter num1 ')) n2 = int(input('Enter num2 ')) s = n1 + n2 p = n1 * n2 print('Sum=', s)</pre>
20	Write a program to enter temperature in Fahrenheit and convert it in Celsius
Ans.	<pre>f = int(input('Enter temperature (Fahrenheit) ')) c = (f-32)*5/9</pre>
21	Write a program to enter any money and find out number of denominations can be used to make that money. For e.g. if the money entered is 2560 Then output should be 500 = 1 200 = 0 100 = 0 50 = 1 20 = 0 10 = 1 5 = 0 2 = 0 1 = 0 Hint : use % and // operator (Without Loop / Recursion)
	<pre>amount = int(input('Enter Amount ')) n2000 = amount//2000 amount = amount % 2000</pre>

Ans.	<pre>n500 = amount//500 amount = amount % 500 n200 = amount//200 amount = amount %200 n100 = amount//100 amount = amount %100 n50 = amount//50 amount = amount %50 n20 = amount//20 amount = amount %20 n10 = amount // 10 amount = amount %10 n5 = amount // 5</pre>
	<pre>n1 = amount//1 amount = amount % 1 print('2000=',n2000) print('500=',n500) print('200=',n200) print('100=',n100) print('50=',n50) print('20=',n20) print('10=',n10) print('5=',n5)</pre>
22	<p>Consider a list:</p> <pre>MyFamily = ["Father","Mother","Brother","Sister","Jacky"]</pre> <ol style="list-style-type: none"> write statement to print "Brother" write statement to print all items of list in reverse order write statement to check "Sister" is in MyFamily or not write statement to update "Jacky" with "Tiger" write statement remove "Jacky" from MyFamily and also print it write statement to add "Tommy" in MyFamily at the end
	<pre>a) print(MyFamily[2]) b) print(MyFamily[::-1])</pre>

Ans.	<p>c) 'Sister' in MyFamily</p> <p>d) <code>MyFamily[len(MyFamily)-1]='Tiger'</code> OR</p> <p><code>MyFamily[4]="Tiger"</code></p> <p>e) <code>MyFamily.pop()</code></p> <p>f) <code>MyFamily.append(„Tommy“)</code></p>
23	<p>Consider a Tuple:</p> <p>Record = (10,20,30,40)</p> <p>Raj wants to add new item 50 to tuple, and he has written expression as</p> <p>Record = Record + 50, but the statement is giving an error, Help Raj in writing correct expression.</p>
Ans.	Record = Record + (50,)
24	What is the difference between List and Tuple?
Ans.	List is mutable type whereas Tuple is Immutable.
25	What is the difference between List and String?
Ans.	List is mutable type whereas String is immutable. List can store elements of any type like-string, list, tuple, etc. whereas String can store element of character type only.
26	What is ordered and unordered collection? Give example of each
Ans.	Ordered collection stores every elements at index position starts from zero like List, Tuples, string whereas unordered collection stores elements by assigning key to each value not by index like dictionary
27	<p>Consider a Dictionary</p> <p>Employee = {„Empno“:1,“Name“:„Snehil“,“Salary“:80000}</p>
	<p>Write statements:</p> <p>(i) to print employee name</p> <p>(ii) to update the salary from 80000 to 90000</p>
Ans.	<p>(i) <code>print(Employee['Name'])</code></p> <p>(ii) <code>Employee['Salary']=90000</code></p> <p>(iii) <code>print(Employee.values())</code></p>
28	<p>Num = 100</p> <p>Isok = False</p> <p><code>print(type(Num))</code> = _____</p> <p><code>print(type(Isok))</code> = _____</p>
Ans.	<p><class 'int'></p> <p><class 'bool'></p>

29	<p>Name the Python Library module which need to be imported to invoke the following function:</p> <p>a) floor() b) randrange()</p>
Ans.	<p>a) math b) random c) random</p>
30	<p>Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.</p> <pre>30=To for K in range(0,To) IF k%4==0:</pre>
Ans.	<pre>To=30 for K in range(0,To): if K%4==0: print(K*4)</pre>
31	<p>Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code:</p> <pre>a=5 work=true b=hello c=a+b FOR i in range(10) if i%7=0: continue</pre>
Ans.	<pre>a=5 work=True</pre>
	<pre>c = a + b for i in range(10): if i%7==0:</pre>
32	<p>Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code:</p> <pre>for Name in [Ramesh,Suraj,Priya] IF Name[0]='S':</pre>

Ans.	<pre>for Name in [„Ramesh“,„Suraj“,„Priya“]: if Name[0]=='S':</pre>
33	<p>Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code:</p> <pre>a=b=10 c=a+b While c<=20: print(c,END="*") c+=10</pre>
Ans.	<pre>a=b=10 c=a+b while c<=20: print(c,end="*")</pre>
34	<p>Choose the correct possible answer(s)</p> <pre>a = random.randint(1,5) b = random.randint(1,3) c = random.randint(2,6) print(a,b,c)</pre> <p>(i) 2 1 3 (ii) 4 4 4 (iii) 3 2 1 (iv) 5 3 5</p>
Ans.	(i) (iv)
35	<p>What is type conversion in Python? What are different types of conversion? Illustrate with example.</p>
Ans.	<p>Type conversion refers to conversion of one data type to another data type for e.g. string is converted to int. There are 2 types of conversion:</p> <p>1) Implicit: in this of conversion, it is automatically done by the interpreter without user intervention.</p> <p>Example:</p> <pre>Num = [10,20,30] print(type(Num[1])) # int Num[1] = Num[1] + 4.5 # it will automatically convert to float Print(type(Num[1])) # float</pre> <p>2) Explicit: in this type of conversion, user will convert any type of value to its desired type. For example string to int.</p> <p>Example:</p>
36	<p>Fill in the blanks to execute infinite loop:</p> <pre>while _____:</pre>
Ans.	<pre>while True: print("spinning")</pre>

37	Write a program to enter any number and check it is divisible by 7 or not
Ans.	<pre>num = int(input('Enter any number ')) if num % 7 == 0: print('Divisible by 7') else: print('Not divisible by 7')</pre>
38	<p>Fill in the blanks to execute loop from 10 to 100 and 10 to 1</p> <p>(i)</p> <pre>for i in range(_____): print(i)</pre> <p>(ii)</p> <pre>for i in range(_____): print(i)</pre>
Ans.	<p>(i)</p> <pre>for i in range(10,101): print(i)</pre> <p>(ii)</p> <pre>for i in range(10,0,-1): print(i)</pre>
39	<p>What will be the output if entered number (n) is 10 and 11</p> <pre>i=2 while i<n: if num % i==0: break print(i) i=i+1</pre>
Ans.	<p>If n is 10 then when program control enter in loop the if condition will be satisfied and break will execute cause loop to terminate. The else part of while will also be not executed because loop terminated by break. (NO OUTPUT)</p> <p>If n is 11 it will print 2 to 10 and then it will execute else part</p>

40	<p>What will be the difference in output</p> <p>(i)</p> <pre>for i in range(1,10): if i % 4 == 0: break print(i)</pre> <p>(ii)</p> <pre>for i in range(1,10): if i % 4 == 0: continue print(i)</pre>
Ans.	<p>(i)</p> <p>1</p> <p>2</p> <p>3</p> <p>(ii)</p> <p>1</p> <p>2</p> <p>3</p> <p>5</p>
41	<p>What possible outputs(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 FROM and TO.</p> <pre>import random AR=[20,30,40,50,60,70]; FROM=random.randint(1,3) TO=random.randint(2,4) for K in range(FROM,TO+1): print (AR[K],end="#")</pre>
Ans.	<p>Maximum Value of FROM = 3</p> <p>Maximum Value of TO = 4</p>

	<p>What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the minimum and maximum value that can be assigned to the variable PICKER.</p> <pre>import random PICKER=random.randint(0,3) COLORS=["BLUE","PINK","GREEN","RED"] for I in COLORS: for J in range(1,PICKER): print(I,end="") print()</pre>	
42	(i) BLUE PINK GREEN RED	(ii) BLUE BLUEPINK BLUEPINKGREEN BLUEPINKGREENRED
	(iii) PINK PINKGREEN PINKGREENRED	(iv) BLUEBLUE PINKPINK GREENGREEN REDRED
Ans.	Minimum Value of PICKER = 0 Maximum Value of PICKER = 3	
43	What are the correct ways to generate numbers from 0 to 20	

	range(20) (ii) range(0,21) (iii) range(21) (iv) range(0,20)
Ans.	(ii) And (iii)
44	Which is the correct form of declaration of dictionary? (i) Day={1:"monday",2:"tuesday",3:"wednesday"} (ii) Day=(1;"monday",2;"tuesday",3;"wednesday") (iii) Day=[1:"monday",2:"tuesday",3:"wednesday"]
Ans.	(i)
45	Choose the correct declaration from the following code: Info = ({,"roll":[1,2,3],"name":["amit","sumit","rohit"]}) List (ii) Dictionary (iii) String (iv) Tuple
Ans.	(iv) Tuple
46	Which is the valid dictionary declaration? i) d1={1:'January',2:'February',3:'March'} ii) d2=(1:'January',2:'February',3:'March') iii) d3={1:'January',2:'February',3:'March'}
Ans.	(iii)

47	<p>What is/are not true about Python`s Dictionary?</p> <p>(i) Dictionaries are mutable</p> <p>(ii) Dictionary items can be accessed by their index position</p> <p>(iii) No two keys of dictionary can be same</p>
Ans.	(ii) and (iv)
48	<pre>x="abAbcAba" for w in x: if w=="a": print("*") else:</pre>
Ans.	<pre>* b A b c A b</pre>
49	<p>Convert the following „for“ loop using „while“ loop</p> <pre>for k in range (10,20,5):</pre>
Ans.	<pre>k = 10 while k<=20: print(k)</pre>
50	<p>Give Output</p> <pre>colors=["violet", "indigo", "blue", "green", "yellow", "orange", "red"]</pre>
	<pre>colors.remove("blue") p=colors.pop(3) print(p, colors)</pre>
Ans.	orange ['violet', 'indigo', 'green', 'red']
51	<p>Output of following code:</p> <pre>A=10 B=15 S=0 while A<=B: S = A + B A = A + 10 B = B + 10</pre>
Ans.	65

52	<p>Output of the following code:</p> <pre>X = 17 if X>=17: X+=10 else:</pre>
Ans.	27
53	<p>How many times loop will execute:</p> <pre>P=5 Q=35 while P<=Q:</pre>
Ans.	6 times
54	<p>Find and write the output of the following python code:</p> <pre>Msg="CompuTer" Msg1='' for i in range(0, len(Msg)): if Msg[i].isupper(): Msg1=Msg1+Msg[i].lower() elif i%2==0: Msg1=Msg1+'*'</pre>
Ans.	cO*P*t*R
55	<pre>A=10 B=10 print(A == B) = ? print(id(A) == id(B)) = ?</pre>
Ans.	True True True

FUNCTIONS AND PYTHON LIBRARIES

Very Short Answer Type Questions (1-Mark)

Q1. What is default parameter?

Ans: A parameter having default value in the function header is known as a default parameter.

Q2. Can a function return multiple values in python?

Ans: YES.

Q.3 What will the following function return?

```
def addEm(x, y, z):
```

```
    print(x + y + z)
```

Ans: None object will be returned, (no return statement).

Q.4 What does the rmdir() method do?

Ans: The rmdir() method deletes an empty directory, which is passed as an argument in the method. Before removing a directory, all the contents in it should be deleted, i.e. directory should be empty. OSError will be raised if the specified path is not an empty directory.

Q.5 How can we find the names that are defined inside the current module?

Ans: The names defined inside a current module can be found by using dir () function.

Q.6 How is module namespace organized in a Package?

Ans: Module namespace is organized in a hierarchical structure using dot notation.

Q.7 Which variables have global scope?

Ans: The variables that are defined outside every function(local scope) in the program have a global scope. They can be accessed in the whole program anywhere (including inside functions).

Q.8 Why do we define a function?

Ans: We define a function in the program for decomposing complex problems into simpler pieces by creating functions and for reducing duplication of code by calling the function for specific task multiple times

Q.9 What is an argument?

Ans: An argument is a value sent onto the function from the function call statement. e.g. sum(4,3) have 4 and 3 as arguments which are passed to sum() function.

Q. 10 What is the use of return statement?

Ans: The return statement is used to exit a function and go back to the place from where it was called.

Short Answer Type Questions (2-Marks)

Q1. Rewrite the correct code after removing the errors: -

```
def SI(p,t=2,r):  
    return (p*r*t)/100
```

Ans: - def SI(p, r, t=2):

```
    return(p*r*t)/100
```

Q2. Consider the following function headers. Identify the correct statement: -

1) def correct(a=1,b=2,c):

2) def correct(a=1,b,c=3):

3) def correct(a=1,b=2,c=3):

4) def correct(a=1,b,c):

Ans: - 3) def correct(a=1,b=2,c=3)

Q3.What will be the output of the following code?

```
a=1 def f():
```

```
    a=10
```

```
print(a)
```

Ans: The code will print 1 to the console.

Q.4 Differentiate between fruitful functions and non-fruitful functions.

Ans: Fruitful function - The functions that return a value i.e., non-void functions are also known as fruitful functions. Non - fruitful function - The functions that do not return a value, i.e., void functions are also known as non-fruitful functions.

Q.5 Predict the output of the following code:

```
a = 10
```

```
y = 5
```

```
def myfunc():
```

```
    y = a
```

```
    a = 2
```

```
    print "y =", y ,",a =",a
```

```
    print "a + y = ", a + y
```

```
    return a + y
```

```
print "y =", y,"a =",a
```

```
print myfunc()
print "y =",y,"a =",a
```

Ans: Output of the code is: Name a not defined. Since, a was declared after its use in myfunc() function a = 2 is declared, after the statement y = a, resulting in the not defined error.

Q.6 Explain the Scope of Variables.

Ans: There are two basic scopes of variables in Python :

- i. Global variables that are accessible throughout the program anywhere inside all functions have global scope.
- ii. Local variables that are accessible only inside the function where they are declared, have local scope.

Q.7 How can we import a module in Python?

Ans: i. using import statement

Syntax: import [,,...]

Example:

```
import math, cmath
import random, math, numpy
```

ii. using from statement

Syntax: from import [,,...]

Example:

```
from math import sqrt, pow
from random import random, randint, randrange
```

Q.8 Find and write the output of the following python code:

```
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)
```


Ans:

250 # 150

250 # 100

130 # 100

The R = Change(R,S) prints the value of R and S from the function and updates variable R. Then, next print(R, "#",S) statement prints the updated value of R and value of S. Then, S = Change(S) prints the value of S and Q(=30) in the function.

Q.9 What is the utility of:

- i. default arguments
- ii. keyword arguments

Ans: i. The default parameters are parameters with a default value set to them. This default value is automatically considered as the passed value WHEN no value is provided for that parameter in the function call statement. Thus default arguments are useful when we want to skip an argument in a function call statement and use the default value for it instead.

ii. The keyword arguments give complete control and flexibility over the values sent as arguments for the corresponding parameters. Irrespective of the placement and order of arguments, keyword arguments are correctly matched. A keyword argument is where you provide a name to the variable as you pass it into the function.

Q.10 Why do we need packages in Python?

Ans: As the application program grows larger in size with a lot of modules, we place similar modules in one package and different modules in different packages. This makes a project easy to manage and conceptually clear.

Application Based Questions (3 Marks)

Q1. Write a python program to sum the sequence given below. Take the input n from the user.

$$1 + \frac{1}{1!} + \frac{1}{2!} + \frac{1}{3!} + \dots + \frac{1}{n!}$$

Solution:

```
def fact(x):
```

```
    j=1 , res=1
```

```
    while j<=x:
```

```
        res=res*j
```

```
        j=j+1
```

```
    return res
```

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

```
i=1, sum=1
```

```

while i<=n:
    f=fact(i)
    sum=sum+1/f
    i+=1
print(sum)

```

Q2. Write a program to compute GCD and LCM of two numbers.

Solution:

```

def gcd(x,y):
    while(y):
        x, y = y, x % y
    return x

def lcm(x, y):
    lcm = (x*y)//gcd(x,y)
    return lcm

num1 = int(input("Enter first number: "))
num2 = int(input("Enter second number: "))
print("The L.C.M. of", num1,"and", num2,"is", lcm(num1, num2))
print("The G.C.D. of", num1,"and", num2,"is", gcd(num1, num2))

```

Q3. How many values a python function can return? Explain how?

Ans: Python function can return more than one values.

```

def square_and_cube(X):
    return X*X, X*X*X, X*X*X*X

a=3
x,y,z=square_and_cube(a)
print(x,y,z)

```

Q4. Find the output of the following code: -

```

def CALLME(n1=1,n2=2):
    n1=n1*n2
    n2+=2
    print(n1,n2)

```

CALLME()

CALLME(2,1)

CALLME(3)

Ans: -

2 4

2 3

6 4

Q5. Predict the output of the following code fragment?

```
def check(n1=1, n2=2):
```

```
    n1=n1+n2
```

```
    n2+=1
```

```
    print(n1,n2)
```

```
check()
```

```
check(2,1)
```

```
check(3)
```

Ans:

3 3

3 2

5 3

Q.6 Write a function which takes two string arguments and returns the string comparison result of the two passed strings.

Ans:

```
def stringCompare(str1 , str2):
```

```
if str1.length() != str2.length() :
```

```
    return False
```

```
else:
```

```
    for i in range (str1.length()):
```

```
        if str1[i] != str2[i]:
```

```
            return False
```

```
        else: return True
```

```
first_string = raw_input("Enter First string:")
```

```
second_string = raw_input("Enter Second string:")
```

```
if stringCompare(first_string, second_string):
```

```
    print ("Given Strings are same.")
```

```
else:
```

```
    print ("Given Strings are different.")
```

Q.7 Write a program that reads a date as an integer in the format MMDDYYYY. The program will call a function that prints print out the date in the format , .

Sample run :

Enter date: 12252019

December 25, 2019

Ans: date = input ("Enter date in MMDDYYYY format: ")

```
def prettyPrint(date):
```

```
    months={1: 'January', 2: 'February', 3: 'March', 4: 'April', 5: 'May', 6: 'June', 7: 'July', 8: 'August',
```

```
           9: 'September', 10: 'October', 11: 'November', 12: 'December'}
```

```
    month = months[int(date[:2])]
```

```
    day = date[2:4]
```

```
    year = date[4:]
```

```
    prettyDate = month + " " + day + ", " + year
```

```
    print(prettyDate)
```

```
print(prettyPrint(date))
```

Q.8 What is a package? How is a package different from the module?

Ans: A module in python is a .py file that defines one or more function/classes which you intend to reuse in different codes of your program. To reuse the functions of a given module, we simply need to import the module using the import command. A Python package is a collection of python modules under a common namespace created by placing different modules on a directory along with some special files. This feature comes in handy for organizing modules of one type in one place.

Q. 9 From the program code given below, identify the parts mentioned below :

1. def processNumber(x):

2. x = 72

3. return x + 3

4.

5. `y = 54`

6. `res = processNumber(y)`

Identify these parts: function header, function call, arguments, parameters, function body, main program.

Function header	<code>def processNumber(x) :</code>	in line 1
Function call	<code>processNumber (y)</code>	in line 6
Arguments	<code>y</code>	in line 6
Parameters	<code>x</code>	in line 1
Function body	<code>x = 72</code> <code>return x + 3</code>	in lines 2 and 3
Main program	<code>y = 54</code> <code>res = processNumber(y)</code>	in lines 5 and 6

Ans:

Q. 10 Write a function called `removeFirst` that accepts a list as a parameter. It should remove the value at index 0 from the list. Note that it should not return anything (returns `None`). Note that this function must actually modify the list passed in, and not just create a second list when the first item is removed. You may assume the list you are given will have at least one element.

Ans:

```
def removeFirst (input_list):
```

```
    """This function will remove first item of the list"""
```

```
        input_list.pop(0)
```

```
        #pop removes and returns item of list
```

```
        return
```

.....

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

a. Text File

b. Binary 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

Sno	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 file In [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 list In [23]:file1 =open("E:\\mydata\\info text") In [24]:readInfo =file1.readlines() In [25]:print (readInfo) In [26]:type (readInfo) Out[26]:list
---	-------------	--------------------------	--

- 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 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
- 3) close the file object after which no more writing can be done

SYNTAX: fileobject.close()

Example F.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 the 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

Writing data into files

Sno	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 strstructure
- 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 write a program in python to write and read structure, dictionary to the binary file.

```
Ans  import pickle
      d1={f'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
()


```
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)

- Q1. What 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
- A) d=f.read()
 - B) d=f.read(10)
 - C) d=f.readline()
 - D) d=f.readlines()
- Q5, How many file objects would you need to manage the following situations :
- (a) To process four files sequentially
 - (b) To process two sorted files into third file
- Q6. When do you think text files should be preferred over binary files?

QUESTIONS (2 MARK)

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

```
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 thecode

- 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"

Q1. Write a program in python to read entire content of file ("data.txt")

Hide Answer

Ans.

```
f = open("data.txt","r")
l = f.read()
print(l)
```

Q2. Write a program in python to read first 5 characters from the file("data.txt")

```
f=open("data.txt",'r')
l=f.read(5)
print(l)
```

Q3. Write a program in python to read first line from the file("data.txt")

```
f=open("data.txt",'r')
l=f.readline()
print(l)
```

Q4. Write a program in python to display number of lines in a file("data.txt").

```
f=open("data.txt",'r')
l=f.readlines()
print(len(l))
```

Q5. Write a program in python to display first line from the file("data.txt") using readlines().

Hide Answer

```
f = open("data.txt", "r")
l = f.readlines()
print(len(l[0]))
```

Q8. Accept five names from the user and write in a file "name.txt"

Hide Answer

Ans.

```
f = open("name.txt", "w")
for i in range(5):
    n = input("Enter name")
    f.write(n)
f.close()
```

Q9. Accept five sports names from the user and write in a file "sport.txt" (each name should write in separate line)

Hide Answer

Ans

```
f = open("name.txt", "w")
for i in range(5):
    n = input("Enter sport name")
    f.write(n)
    f.write('\n')
f.close()
```

Q10. Accept five hobbies from the user and write in a file "hobby.txt" (each hobby should write in separate line) without using write() function.

Hide Answer

Ans.

```
f = open("hobby.txt", "w")
h = []
for i in range(5):
    n = input("Enter hobby name")
    h.append(n, '\n')
f.writelines(h)
f.close()
```

Q1. Write a function in Python that counts the number of "Me" or "My" (in smaller case also) words present in a text file "STORY.TXT". If the "STORY.TXT" contents are as follows:

My first book was Me and My Family. It gave me chance to be Known to the world.

The output of the function should be: Count of Me/My in file: 4

Solution

```
*test.py - C:/Users/user/AppData/Local/Programs/Python/Python38-32/test.py (3.8.5)*
File Edit Format Run Options Window Help
def countmemy():
    f = open("story.txt", "r")
    d = f.read()
    m=d.split()
    c=0
    for i in m:
        if i=="Me" or i=="My" or i=="me" or i=="my":
            c = c+1
    print("Count of Me/My in file",c)
countmemy() #function called to verify result
```

2

Q2. Write a function AMCount() in Python, which should read each character of a text file STORY.TXT, should count and display the occurrence of alphabets 'A' and 'M' (including small cases 'a' and 'm' too). Example: If the file content is as follows:

Updated information As simplified by official websites.

The AMCount() function should display the output as: A or a = 4, M or m =2

Solution

```
*test.py - C:/Users/user/AppData/Local/Programs/Python/Python38-32/test.py (3.8.5)*
File Edit Format Run Options Window Help
def countam():
    f = open("story.txt", "r")
    d = f.read()
    #m=d.split()
    cm=0
    ca=0
    for i in d:
        if i=="M" or i=="m":
            cm = cm+1
        if i=="A" or i=="a":
            ca = ca+1
    print("A or a =",ca , "M or m = ", cm)
countam() #function called to verify result
```

3

Q3. Write a function in python to count the number of lines in a text file '

STORY.TXT' which is starting with an alphabet 'A' .

Solution:

```
*test.py - C:/Users/user/AppData/Local/Programs/Python/Python38-32/test.py (3.8.5)*
File Edit Format Run Options Window Help
def counta():
    f = open("story.txt", "r")
    c = 0
    d = f.readlines()
    for i in d:
        if i[0]=='A':
            c = c+1
    print("Lines starting from A are",c)
counta() #function called to verify result
```

4

Q4. Write a method/function DISPLAYWORDS() in python to read lines from a text file STORY.TXT, and display those words, which are less than 4 characters.

Solution

```
*test.py - C:/Users/user/AppData/Local/Programs/Python/Python38-32/test.py (3.8.5)*
File Edit Format Run Options Window Help
def displaywords():
    f = open("story.txt", "r")
    d = f.read()
    m = d.split()
    for i in m:
        if (len(i)<4):
            print(i)
displaywords() #function called to verify result
```

5

Q5. Write a function RevText() to read a text file " Story.txt " and Print only word starting with 'I' in reverse order . Example: If value in text file is: INDIA IS MY COUNTRY Output will be: AIDNI SI MY COUNTRY.

Solution

```
*test.py - C:/Users/user/AppData/Local/Programs/Python/Python38-32/test.py (3.8.5)
File Edit Format Run Options Window Help
def revtext():
    f = open("story.txt", "r")
    s=""
    while True:
        d = f.readline()
        if not d:
            break
        else:
            m=d.split()
            for i in m:
                if i[0]=='i' or i[0]=='I':
                    s=s + " " +i[::-1])
                else:
                    s=s+" "+i
            print(s)
            s=""
revtext() #function called to verify result
```

6

Q6. Write a function in python to count the number of lowercase alphabets present in a text file "Story.txt"

Solution

```

test.py - C:/Users/user/AppData/Local/Programs/Python/Python38-32/test.py (3.8.5)
File Edit Format Run Options Window Help
def countlower():
    f = open("story.txt", "r")
    d = f.read()
    c=0
    for i in d:
        if i.islower():
            c=c+1
    print("Total lowercase characters are ",c)

countlower() #function called to verify result

```

Q7. Write a user-defined function named count() that will read the contents of text file named "Story.txt" and count the number of lines which starts with either "I" or "M". E.g. In the following paragraph, there are 2 lines starting with "I" or "M":

"India is the fastest growing economy.
 India is looking for more investments around the globe.
 The whole world is looking at India as a great market.
 Most of the Indians can foresee the heights that India is capable of reaching."

Solution

```

test.py - C:/Users/user/AppData/Local/Programs/Python/Python38-32/test.py (3.8.5)
File Edit Format Run Options Window Help
def count():
    f = open("story.txt", "r")
    d = f.readlines()
    c=0
    for i in d:
        if i[0]=='I' or i[0]=='M':
            c=c+1
    print("Total lines are ",c)

count() #function called to verify result

```

Q8. Write a function `countmy()` in Python to read the text file "Story.txt" and count the number of times "my" or "My" occurs in the file. For example if the file "Story.TXT" contains:

"This is my website. I have displayed my preferences in the CHOICE section."

The `countmy()` function should display the output as: "my occurs 2 times".

Solution

```

test.py - C:/Users/user/AppData/Local/Programs/Python/Python38-32/test.py (3.8.5)*
File Edit Format Run Options Window Help
def countmy():
    f = open("story.txt", "r")
    d = f.read()
    m=d.split()
    c=0
    for i in m:
        if i=='my' or i=='My':
            c=c+1
    print("my or My occurs ",c,"times")

countmy() #function called to verify result

```

Q9. Write a user defined function `countwords()` in python to count how many words are present in a text file named "story.txt". For example, if the file `story.txt` contains following text:

Co-education system is necessary for a balanced society. With co-education system, Girls and Boys may develop a feeling of mutual respect towards each other.

The function should display the following:

Total number of words present in the text file are: 24

Solution

```

test.py - C:/Users/user/AppData/Local/Programs/Python/Python38-32/test.py (3.8.5)
File Edit Format Run Options Window Help
def countwords():
    f = open("story.txt", "r")
    d = f.read()
    m=d.split()
    print("Total number of words present in the text file are ",len(m))

countwords() #function called to verify result

```


Q10. Write a user defined function in Python that displays the number of lines starting with 'H' in the file story.txt. Eg: if the file contains:

Whose woods these are I think I know.
His house is in the village though;
He will not see me stopping here
To watch his woods fill up with snow.

Then the line count should be 2

Solution

```
test.py - C:/Users/user/AppData/Local/Programs/Python/Python38-32/test.py (3.8.5)
File Edit Format Run Options Window Help
def countH():
    f = open("story.txt", "r")
    d = f.readlines()
    c=0
    for i in d:
        if i[0]=="H":
            c=c+1
    print("Line count is ",c)
countH() #function called to verify result
```

1. #Program to find number of He and She in file name poem.txt

```
f=open("c:\\main\\poem.txt","r")
data=f.read()
data=data.split()
print(data)
c=0
c1=0
for ch in data:
    ch=ch.upper()
    if ch=="HE" :
        c=c+1
    elif ch=="SHE":
        c1+=1
print("No of She",c1)
print("No of he",c)
```

2. #function to find number of Vowels in file name poem.txt

```
def countvowel():
    L=["A","E","I","O","U","a","e","i","o","u"]
    f=open("c:\\main\\poem.txt","r")
    data=f.read()
    print(data)
    c=0
    c1=0
    for ch in data:
        #ch=ch.upper()
        if ch in L:
```



```

        c=c+1
    print("No of vowel",c)
countvowel()

```

3. #to write user given values in file in different lines

```

f=open("c:\\main\\newfile.bat","w")
s=[]
n=int(input("enter the terms to be written"))

for i in range(n):
    Rollno=input("enter Rollno")
    s.append(Rollno)
    name=input("enter to be written in file")
    s.append(name+"\n")
f.writelines(s)
f.close()

```

4. #program to copy the content of one file into another

```

f=open("c:\\main\\poem.txt","r")
f1=open("c:\\main\\poem1.txt","w")
rs=" "
while rs:
    rs=f.readline()
    print(rs)
    f1.write(rs)
f.close()
f1.close()

```

5. #To search for the occurrence of particular word entered by user

```

def wordsearch(word):
    file=open("c:\\main\\poem.txt","r")
    data=file.read()
    #data=data.upper()
    data=data.split()
    c=0

    for i in data:

        #word=word.upper()
        if i==word:
            c+=1
    print("Word found", c,"times")

```

```

w=input("enter word to be searched")
wordsearch(w)

```

6. #Print those word whose first character starts with T

```

def startwithT():

```

```
file=open("c:\\main\\poem.txt","r")
data=file.read()
data=data.split()
for i in data:
    if i[0]=="T":
        print(i)
file.close()
startswithT()
```

7. #counting length without new line character

```
file=open("c:\\main\\myfile1.txt","r")
```

```
data=""
while True:
    rs=file.readline()
    data=data+rs.strip()
    print(data)
a=len(data)
print(a)
```

BINARY FILES:-

1. #program to write, read and search students details in binary files using dictionary

```

import pickle
def writingb():

    file=open("c:\\main\\newbfile.dat", "ab")
    d={}
    a=int(input("enter range"))
    for i in range(a):
        #d["name"]="Tanuj"
        d["Rollno"]=int(input("enter rollno"))
        d["name"]=input("enter name")
        d["marks"]=int(input("enter marks"))
        pickle.dump(d,file)
    print("written successfully")
    file.close()
def readingb():

    file=open("c:\\main\\newbfile.dat", "rb")
    while True:
        data=pickle.load(file)
        print(data)

    file.close()
def search(n):

    f=0
    try:

        file=open("c:\\main\\newbfile.dat", "rb")
        while True:
            data=pickle.load(file)
            if data["Rollno"]==n:
                print("Data Found")
                print(data)
                f=1
                break

    except EOFError:
        pass
    if f==0:
        print("Not Found")

    file.close()
writingb()

```

```
readingb()
a=int(input("enter no"))
search(a)
```

2. #Program to read, write and updation in list

```
import pickle
f=open("c:\\main\\list.dat","wb+")
a=eval(input("enter list elements"))
pickle.dump(a,f)
f.seek(0)
```

```
data=pickle.load(f)
print(data)
f.close()
```

```
f=open("c:\\main\\list.dat","rb+")
L1=[]
data=pickle.load(f)
f.seek(0)
L1=data
a=input("enter value to be replaced")
a1=input("new value")
for i in range(len(L1)):
```

```
    if str(L1[i])==a:
        L1[i]=a1
print("updated list",L1)
pickle.dump(L1,f)
f.close()
```

```
f=open("c:\\main\\list.dat","rb")
data=pickle.load(f)
print("New file",data)
f.close()
```

Q 1) Write a python program to create binary file dvd.dat and write 10 records in it Dvd id,dvd name,qty,price Display those dvd details whose dvd price more than 25.

SOURCE CODE:

```
import pickle
f=open("pl.dat","ab")
ch="Y"
while ch=="Y":
    l=[]
    pi=int(input("enter dvd id "))
    pnm=input("enter dvd name ")
    sp=int(input("enter qty "))
    p=int(input("enter price(in rupees) "))
    l.append(pi)
    l.append(pnm)
    l.append(sp)
```

```

l.append(p)
pickle.dump(l,f)
ch=input("do you want to enter more rec(Y/N): ").upper()
if ch=="Y":
    continue
else:
    break
f.close()
f=open("pl.dat","rb+")
try:
    while True:
        l=pickle.load(f)
        if l[3]>25:
            print(l)
except EOFError:
    pass
f.close()

```

OUTPUT:::

```

Python 3.8.5 Shell
File Edit Shell Debug Options Window Help
= RESTART: C:\Users\Abhishek\AppData\Local\Programs\Py
am files\bin.py
enter dvd id 101
enter dvd name dv1
enter qty 10
enter price(in rupees) 100
do you want to enter more rec(Y/N): y
enter dvd id 102
enter dvd name dv2
enter qty 23
enter price(in rupees) 43
do you want to enter more rec(Y/N): y
enter dvd id 103
enter dvd name dv3
enter qty 434
enter price(in rupees) 534
do you want to enter more rec(Y/N): y

do you want to enter more rec(Y/N): y
enter dvd id 104
enter dvd name dv4
enter qty 342
enter price(in rupees) 23
do you want to enter more rec(Y/N): n
[101, 'dv1', 10, 100]
[102, 'dv2', 23, 43]
[103, 'dv3', 434, 534]
>>>

```

Q 2) Write a python program to create binary file stud.dat and write 10 records in it Stud id.Done on 9 Nov 2020 name,perc.total Display those student details whose perc more than 50.

SOURCE CODE:::

```

import pickle
f=open("stu.dat","ab")
ch="Y"
while ch=="Y":
    l=[]
    si=int(input("ENTER STUDENT ID "))
    snm=input("ENTER STUDENT NAME")
    sp=int(input("ENTER PERCENTAGE "))

```

```

m=int(input("ENTER MARKS"))
l.append(si)
l.append(snm)
l.append(sp)
l.append(m)
pickle.dump(l,f)
ch=input("DO WANT TO ENTER MORE RECORDS ?(Y/N): ").upper()
if ch=="Y":
    continue
else:
    break
f.close()
f=open("stu.dat","rb+")
try:
    while True:
        g=pickle.load(f)
        if g[2]>50:
            print(g)
except EOFError:
    pass
f.close()

```

OUTPUT::

```

ENTER STUDENT ID 101
ENTER STUDENT NAMEabc
ENTER PERCENTAGE 98
ENTER MARKS34
DO WANT TO ENTER MORE RECORDS ?(Y/N) : y
ENTER STUDENT ID 102
ENTER STUDENT NAMExxyz
ENTER PERCENTAGE 33
ENTER MARKS343
DO WANT TO ENTER MORE RECORDS ?(Y/N) : y
ENTER STUDENT ID 103
ENTER STUDENT NAMEmno
ENTER PERCENTAGE 89
ENTER MARKS34
DO WANT TO ENTER MORE RECORDS ?(Y/N) : n
[101, 'abc', 98, 34]
[103, 'mno', 89, 34]
>>> |

```

Q3:- Write a python program to create binary file emp.dat and enter 10 records in it empid empnm desg sal city. Display those employee details whose Name starts with R and ends with P.

Source Code:-

```

import pickle
f=open("C:\\Games\\emp.dat","wb+")
ch="Y"
while ch=="Y":
    L=[]
    empno=int(input("Enter employee number:"))
    empnm=input("Enter employee name:")
    sal=int(input("Enter employee salary:"))
    desg=input("Enter the designation of the employee:")
    city=input("Enter the city where the employee lives:")
    L.append(empno)
    L.append(empnm)
    L.append(sal)

```

```

L.append(desg)
L.append(city)
print("The content which will be written in the file is",L)
pickle.dump(L,f)
ch=input("Do you want to add more(y,n)=").upper()
if ch=="Y":
    continue
else:
    break
f.close()
f=open("C:\\Games\\emp.dat","rb")
f.seek(0)
try:
    while True:
        c=pickle.load(f)
        a=c[1]
        if a[0].upper()=="R" and a[-1].upper()=="P":
            print(c)
except EOFError:
    pass
f.close()

```

Output:-

```

>>>
== RESTART: C:\Users\hv219\AppData\Local\Programs\Python\Python37\Hello.py ==
Enter employee number:101
Enter employee name:Rajdeep
Enter employee salary:100000
Enter the designation of the employee:CEO
Enter the city where the employee lives:Delhi
The content which will be written in the file is [101, 'Rajdeep', 100000, 'CEO', 'Delhi']
Do you want to add more(y,n)=y
Enter employee number:102
Enter employee name:Harsh
Enter employee salary:10000000
Enter the designation of the employee:Manager
Enter the city where the employee lives:Ahrn
The content which will be written in the file is [102, 'Harsh', 10000000, 'Manager', 'Ahrn']
Do you want to add more(y,n)=y
Enter employee number:103
Enter employee name:Rishap
Enter employee salary:20000
Enter the designation of the employee:Officer
Enter the city where the employee lives:Jaipur
The content which will be written in the file is [103, 'Rishap', 20000, 'Officer', 'Jaipur']
Do you want to add more(y,n)=n
[101, 'Rajdeep', 100000, 'CEO', 'Delhi']
[103, 'Rishap', 20000, 'Officer', 'Jaipur']
>>> |

```

Q. Write a Python program to create binary emp.dat and write 10 records in it.
Structure empid, empname, desg, sal and display no of records in the file.

CODE:-

```

import pickle
ch='Y'
f=open("emp.dat","wb")
while ch=="Y":
    l=[]
    empid=input("enter employee id")
    ename=input("enter emp name")
    desg=input("DESIGNATION?")
    sal=input("enter salary")
    l.append(empid)
    l.append(ename)
    l.append(desg)

```

```

l.append(sal)
pickle.dump(l,f)
ch=input("WANT TO ADD MORE RECORDS?(Y/N)").upper()
if ch=="Y":
    continue
else:
    break
f.close()
f.seek(0)
f=open('emp.dat','rb')
c=0
try:
    while True:
        e=pickle.load(f)
        print(e)
        c=c+1
        print(c)
except EOFError:
    pass
f.close()

```

Output:-

```

enter employee id1
enter emp namehi
DESIGNATION?md
enter salary12332313
WANT TO ADD MORE RECORDS?(Y/N)y
enter employee id2
enter emp namehello
DESIGNATION?zvp
enter salary21331313
WANT TO ADD MORE RECORDS?(Y/N)y
enter employee id3
enter emp namebye
DESIGNATION?director ceo
enter salary092292123
WANT TO ADD MORE RECORDS?(Y/N)n
['1', 'hi', 'md', '12332313']
1
['2', 'hello', 'zvp', '21331313']
2
['3', 'bye', 'director ceo', '092292123']
3

```

**Q:Write a python program to create binary file emp.dat and write 10 records in it
Emp id,emp name,desg,sal Display those emp details whose salary more than 50000.
SOURCE CODE:**

```

import pickle
f=open("emp.dat","ab+")
ch="Y"
while ch=="Y":
    l=[]
    eid=int(input("enter employe id"))
    enm=input("enter employe name")
    ed=input("enter employe designation")
    esal=int(input("enter employe salary"))

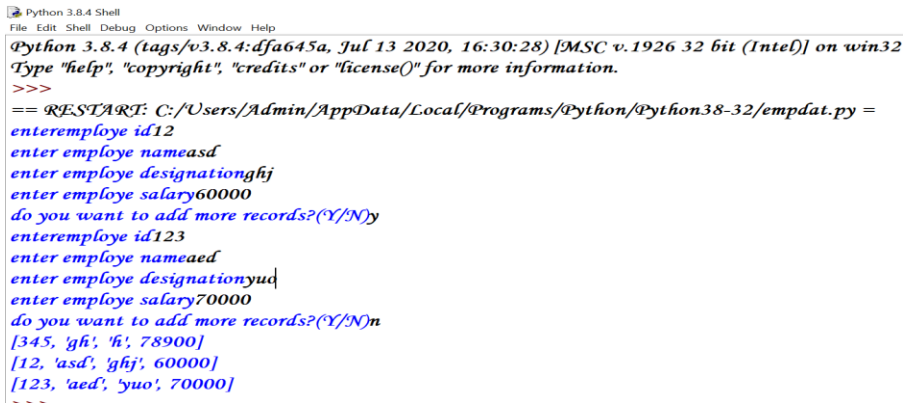
```



```

l.append(eid)
l.append(enm)
l.append(ed)
l.append(esal)
pickle.dump(l,f)
ch=input("do you want to add more records?(Y/N)").upper()
if ch=="Y":
    continue
else:
    break
f.close()
f=open("emp.dat", "rb+")
try:
    while True:
        a=pickle.load(f)
        if a[3]>50000:
            print(a)
except EOFError:
    pass
f.close()

```

OUTPUT:


```

Python 3.8.4 Shell
File Edit Shell Debug Options Window Help
Python 3.8.4 (tags/v3.8.4:dfa645a, Jul 13 2020, 16:30:28) [MSC v.1926 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
== RESTART: C:/Users/Admin/AppData/Local/Programs/Python/Python38-32/empdat.py =
enter employe id12
enter employe nameaed
enter employe designationghj
enter employe salary60000
do you want to add more records?(Y/N)y
enter employe id123
enter employe nameaed
enter employe designationyud
enter employe salary70000
do you want to add more records?(Y/N)n
[345, 'gh', 'h', 78900]
[12, 'asd', 'ghj', 60000]
[123, 'aed', 'yuo', 70000]

```

Q:Write a python program to create binary file player.dat and write 10 records in it Player id,pl name,sports,city . Display those details who belongs to Surat city

Ans:-

```

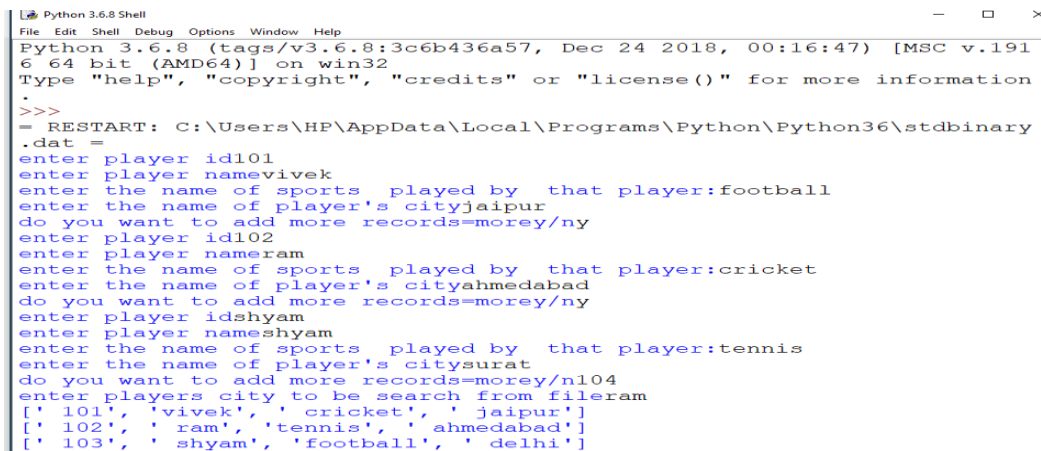
import pickle
f=open("player.dat", "ab+")
ch='Y'
while ch=='Y':
    l=[]
    playerid=input("enter player id")
    plnm=input("enter player name")
    sports=input("enter the name of sports played by that player:")

```

```

city=input("enter the name of player's city")
l.append(playerid)
l.append(plnm)
l.append(sports)
l.append(city)
pickle.dump(l,f)
ch=input("do you want to add more records=more y/n").upper()
if ch=='Y':
    continue
else:
    break
f.close()
f.seek(0)
f=open("player.dat","rb+")
try:
    while True:
        p=pickle.load(f)
        if p[3]=="surat":
            print(p)
except EOFError:
    pass
f.close()

```

OUTPUT:-


```

Python 3.6.8 Shell
File Edit Shell Debug Options Window Help
Python 3.6.8 (tags/v3.6.8:3c6b436a57, Dec 24 2018, 00:16:47) [MSC v.191
6 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information
.>>>
- RESTART: C:\Users\HP\AppData\Local\Programs\Python\Python36\stdbinary
.dat =
enter player id101
enter player namevivek
enter the name of sports played by that player:football
enter the name of player's cityjaipur
do you want to add more records=more y/ny
enter player id102
enter player name ram
enter the name of sports played by that player:cricket
enter the name of player's cityahmedabad
do you want to add more records=more y/ny
enter player idshyam
enter player name shyam
enter the name of sports played by that player:tennis
enter the name of player's city surat
do you want to add more records=more y/n104
enter players city to be search from fileram
['101', 'vivek', 'cricket', 'jaipur']
['102', 'ram', 'tennis', 'ahmedabad']
['103', 'shyam', 'football', 'delhi']

```

WRITE A PYTHON PROGRAM TO CREATE BINARY FILE stu.dat AND WRITE 10 RECORDS IN IT STUD ID,MANE,PERCENTAGE,TOTAL MARKS. DISPLAY THOSE STUDENT DETAILS WHOSE STUD ID LESS THAN 20.

code

```

import pickle
f=open("stu.dat","ab")
ch="Y"
while ch=="Y":
    l=[]
    Id=int(input("Enter Id "))

```

```

nm=input("Enter Name")
perc=int(input("Enter percentage "))
marks=int(input("Enter marks"))
l.append(l)
l.append(nm)
l.append(perc)
l.append(marks)
pickle.dump(l,f)
ch=input("Do you want to enter more records?(Y/N): ").upper()
if ch=="Y":
    continue
else:
    break
f.close()
f=open("stu.dat","rb+")
try:
    while True:
        a=pickle.load(f)
        if a[0]<20:
            print(a)
except EOFError:
    pass
f.close()

```

OUTPUT

```

Enter Id 12
Enter Name abc
Enter percentage 45
Enter marks200
Do you want to enter more records?(Y/N): Y
Enter Id 01
Enter Name pqr
Enter percentage 77
Enter marks365
Do you want to enter more records?(Y/N): Y
Enter Id 234
Enter Name xyz
Enter percentage 95
Enter marks475
Do you want to enter more records?(Y/N): N

```

```
[1, 'gk', 92.6, 457]
```

```
[1, 'gk', 92.6, 456]
```

```
[1, 'gk', 92.6, 456]
```

```
[2, 'gg', 45.0, 245]
```

Q-Write a python program to create binary file player.dat and write 10 records in it ,Player id,pl name,sports Display those player details whose sports is athletic.

SOURCE CODE-

```

import pickle
f=open("player.dat", "ab+")
ch='Y'

```

```

while ch=='Y':
    l=[]
    playerid=int(input("enter player id -"))
    playernm=input("enter playernm-")
    sports=input("enter sports")
    place=input("enter place")
    l.append(playerid)
    l.append(playernm)
    l.append(sports)
    l.append(place)
    pickle.Dump(l, f)
    ch=input("do you want to add more records(Y/N)").upper()
    if ch=='Y':
        continue
    else:
        break
f.close()
f=open("player.dat", "rb+")
try:
    while True
        e=pickle.load(f)
        if e[2]=="athletic":
            print(e)
except EOFError:
    pass
f.close()

```

OUTPUT-

```

enter playerid-501
enter player name-Ram
enter player sportsathletic
enter placejaipur
do you want to add more records (Y/N) y
enter playerid-502
enter player name-Karan
enter player sportscricket
enter placedelhi
do you want to add more records (Y/N) y
enter playerid-503
enter player name-Ria
enter player sportsbadminton
enter placekanpur
do you want to add more records (Y/N) y
enter playerid-504
enter player name-Aman
enter player sportshockey
enter placenoida
do you want to add more records (Y/N) y
enter playerid-505
enter player name-Kiara
enter player sportstennis
enter placemumbai
do you want to add more records (Y/N) y
enter playerid-506
enter player name-Rohit
enter player sportsathletic
enter placegoa
do you want to add more records (Y/N) y
enter playerid-507
enter player name-Jiva
enter player sportsathletic
enter placeambala
do you want to add more records (Y/N) y
enter playerid-508
enter player name-Raj
enter player sportsbasketball
enter placebengluru

```

```

enter placebengluru
do you want to add more records (Y/N) y
enter playerid-509
enter player name-Garima
enter player sportsathletic
enter placesurat
do you want to add more records (Y/N) y
enter playerid-5010
enter player name-Tara
enter player sportsvolleyball
enter placeraipur
do you want to add more records (Y/N) n

```

Question -Write a python program to create binary file player.dat and write 10 records in it ,Player id, pl name,sports
Display those player details whose sports is athletic.

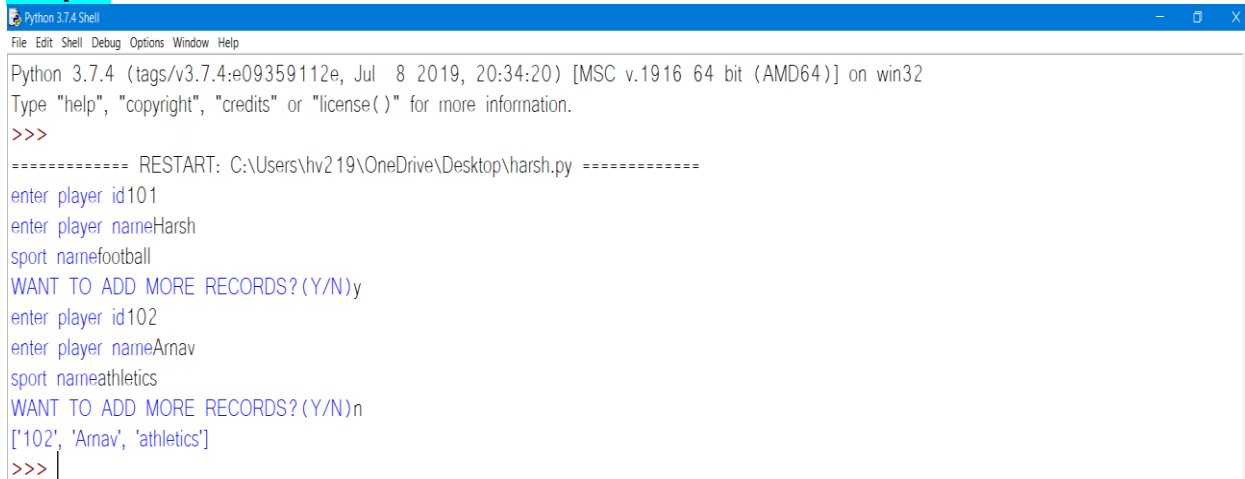
Source Code:-

```

import pickle
ch='Y'
f=open("player.dat","wb")
while ch=="Y":
    l=[]
    playid=input("enter player id")
    pname=input("enter player name")
    sports=input("sport name")
    l.append(playid)
    l.append(pname)
    l.append(sports)
    pickle.dump(l,f)
    ch=input("WANT TO ADD MORE RECORDS?(Y/N)").upper()
    if ch=="Y":
        continue
    else:
        break
    f.close()
f.seek(0)
f=open("player.dat","rb")
try:
    while True:
        e=pickle.load(f)
        if e[2].capitalize()=="Athletics":
            print(e)
except EOFError:
    pass

```

Output:-



```

Python 3.7.4 Shell
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul 8 2019, 20:34:20) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\hv219\OneDrive\Desktop\harsh.py =====
enter player id101
enter player nameHarsh
sport namefootball
WANT TO ADD MORE RECORDS?(Y/N)y
enter player id102
enter player nameArnav
sport nameathletics
WANT TO ADD MORE RECORDS?(Y/N)n
['102', 'Arnav', 'athletics']
>>> |

```

Q-Write a python program to create binary file player.dat and write 10 records in it ,Player id,pl name,sports Display those player details whose sports is chess.

SOURCE CODE-

```

import pickle
f=open("player.dat", "ab+")
c='Y'
while c=='Y':
    l=[]
    playerid=int(input("enter          player id -"))
    playernm=input("enter playernm-")
    sports=input("enter sports")
    place=input("enter place")
    l.append(playerid)
    l.append(playernm)
    l.append(sports)
    l.append(place)
    pickle.Dump(l, f)
    c=input("do you want to add more records(Y/N)").upper()
    if c=='Y':
        continue
    else:
        break
f.close()

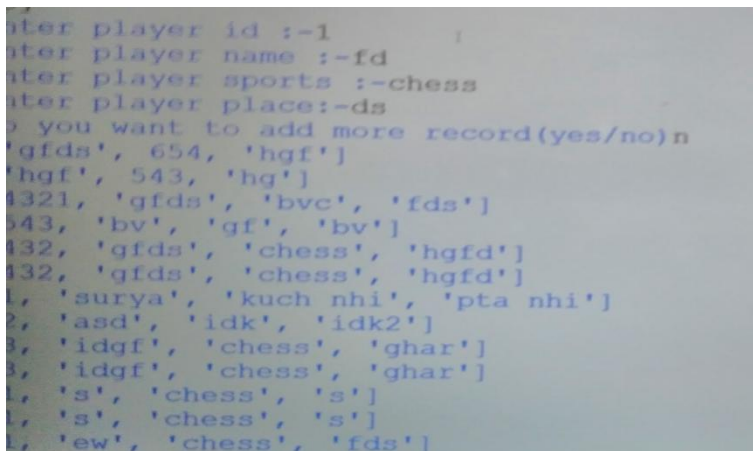
```

```

f=open("player.dat", "rb+")
try:
    while True:
        s=pickle.load(f)
        if s[2]=="chess":
            print(s)
except EOFError:
    pass
f.close()

```

- **OUTPUT-**



```

enter player id :-1
enter player name :-fd
enter player sports :-chess
enter player place:-ds
do you want to add more record(yes/no)n
['gfds', 654, 'hgf']
['hgf', 543, 'hg']
[321, 'gfds', 'bvc', 'fds']
[43, 'bv', 'gf', 'bv']
[32, 'gfds', 'chess', 'hgfd']
[32, 'gfds', 'chess', 'hgfd']
[, 'surya', 'kuch nhi', 'pta nhi']
[, 'asd', 'idk', 'idk2']
[, 'idgf', 'chess', 'ghar']
[, 'idgf', 'chess', 'ghar']
[, 's', 'chess', 's']
[, 's', 'chess', 's']
[, 'ew', 'chess', 'fds']

```

```

#Enter custname,custcode,city in binary file Read file search custcode
import pickle
f=open("cust.dat", "ab+")
ch='Y'

```

```

while ch=='Y':
    l=[]
    ccd=input("enter custcode")
    cnm=input("enter custname and")
    ccity=input("enter city")
    l.append(ccd)
    l.append(cnm)
    l.append(ccity)
    # load list into file
    pickle.dump(l,f)
    ch=input("do you add= more y/n").upper()
    if ch=='Y':
        continue
    else:
        break
# read file set pointer
f.seek(0)
flag=False
# Read file
ccdsearch=input("enter custcode to be search from file")
search=[]
try: #Remove Eof Ranout error
    while True:
        c=pickle.load(f)
        print(c)
        c1cd=c[0]
        c1nm=c[1]
        c1city=c[2]
        if ccdsearch.upper()==c1cd:
            flag=True
            search=c
            break
except EOFError: #Remove Eof Ranout error
    pass #Remove Eof Ranout error
if flag==True:
    print("customer found")
    print("customer name is:",search[1])
else:
    print("customer not found")

```

CSV FILE :-

Q)Write a python program to create a csv file dvd.csv and write 10 records in it Dvd id,dvd name,qty,price. Display those dvd details whose dvd price is more than 25.

SOURCE CODE::

```

import csv
f=open("pl.csv","w")
cw=csv.writer(f)
ch="Y"

```

```

while ch=="Y":
    l=[]
    pi=int(input("enter dvd id "))
    pnm=input("enter dvd name ")
    sp=int(input("enter qty "))
    p=int(input("enter price(in rupees) "))
    l.append(pi)
    l.append(pnm)
    l.append(sp)
    l.append(p)
    cw.writerow(l)
    ch=input("do you want to enter more rec(Y/N): ").upper()
    if ch=="Y":
        continue
    else:
        break
f.close()
f=open("pl.csv","r+")
cw=list(csv.reader(f))
for i in cw:
    if l[3]>25:
        print(i)
f.close()

```

OUTPUT::

```

enter dvd id 101
enter dvd name dv1
enter qty 234
enter price(in rupees) 2324
do you want to enter more rec(Y/N) : y
enter dvd id 102
enter dvd name dv2
enter qty 13
enter price(in rupees) 3232
do you want to enter more rec(Y/N) : n
['101', 'dv1', '234', '2324']
[]
['102', 'dv2', '13', '3232']
[]
>>>

```

**QUESTIONS AND ANSWERE AS PER CBSE SAMPLE PAPER
Q.23**

23.	<p>Abhisar is making a software on "Countries & their Capitals" in which various records are to be stored/retrieved in CAPITAL.CSV data file. It consists some records(Country & Capital). He has written the following code in python. As a programmer, you have to help him to successfully execute the program.</p> <pre> import _____ # Statement-1 def AddNewRec(Country,Capital): # Fn. to add a new record in CSV file f=open("CAPITAL.CSV",_____) # Statement-2 fwriter=csv.writer(f) fwriter.writerow([Country,Capital]) f._____ # Statement-3 def ShowRec(): # Fn. to display all records from CSV file with open("CAPITAL.CSV","r") as NF: NewReader=csv._____(NF) # Statement-4 for rec in NewReader: </pre>	
-----	--	--

Page No. 3

	<pre> print(rec[0],rec[1]) AddNewRec("INDIA","NEW DELHI") AddNewRec("CHINA","BEIJING") ShowRec() # Statement-5 </pre> <p>(a) Name the module to be imported in Statement-1.</p> <p>(b) Write the file mode to be passed to add new record in Statement-2.</p> <p>(c) Fill in the blank in Statement-3 to close the file.</p> <p>(d) Fill in the blank in Statement-4 to read the data from a csv file.</p> <p>(e) Write the output which will come after executing Statement-5.</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>
--	--	--

ANS

	<p>(a) csv</p> <p>(b) "a"</p> <p>(c) close()</p> <p>(d) reader</p> <p>(e) INDIA NEW DELHI</p> <p style="padding-left: 40px;">CHINA BEIJING</p>	
--	--	--

Anis of class 12 is writing a program to create a CSV file "mydata.csv" which will contain user name and password for some entries. He has written the following code. As a programmer, help him to successfully execute the given task.

```

import _____ # Line 1
def addCsvFile(UserName,PassWord): # to write / add data into the CSV file
    f=open(' mydata.csv', '_____') # Line 2
    newFileWriter = csv.writer(f)
    newFileWriter.writerow([UserName,PassWord])
    f.close() #csv file reading code
def readCsvFile(): # to read data from CSV file
    with open('mydata.csv','r') as newFile:

```

```

newFileReader = csv._____(newFile)           # Line 3
for row in newFileReader:
    print (row[0],row[1])
newFile._____                               # Line 4
addCsvFile("Aman", "123@456")
addCsvFile("Anis", "aru@nima")
addCsvFile("Raju", "myname@FRD")
readCsvFile()                                #Line 5

```

- Give Name of the module he should import in Line 1.
- In which mode, Aman should open the file to add data into the file
- Fill in the blank in Line 3 to read the data from a csv file.
- Fill in the blank in Line 4 to close the file.
- Write the output he will obtain while executing Line 5.

```

(a) Line 1 : csv
(b) Line 2 : a
(c) Line 3 : reader
(d) Line 4 : close()
(e) Line 5 : Aman 123@456
              Anis aru@nima
              Raju myname@FRD

```

Priti of class 12 is writing a program to create a CSV file "emp.csv". She has written the following code to read the content of file emp.csv and display the employee record whose name begins from "S" also show no. of employee with first letter "S" out of total record. As a programmer, help her to successfully execute the given task.

Consider the following CSV file (emp.csv):

```

1,Peter,3500
2,Scott,4000
3,Harry,5000
4,Michael,2500
5,Sam,4200

```

```

import _____           # Line 1
def S NAMES():
    with open(_____) as csvfile: # Line 2
        myreader = csv._____(csvfile, delimiter=',') # Line 3
        count_rec=0
        count_s=0
        for row in myreader:

```

```

if row[1][0].lower()=='s':
    print(row[0],',',row[1],',',row[2])
    count_s+=1
    count_rec+=1
print("Number of 'S' names are ",count_s,"/",count_rec)

```

- (a) Name the module he should import in Line 1 1
- (b) In which mode, Priti should open the file to print data. 1
- (c) Fill in the blank in Line 2 to open the file. 1
- (d) Fill in the blank in Line3 to read the data from a csv file. 1
- (e) Write the output he will obtain while executing the above program. 1
- (a) csv 1
- (b) read mode 1
- (c) 'emp.csv' 1
- (d) reader 1
- (e) 2,Scott,4000 1
- 5, Sam,4200 1

Number of "S" names are 2/5

Sanjay Dalmia of class 12 is writing a program to create a CSV file "contacts.csv" which will contain Name and Mobile Number for some entries. He has written the following code. As a programmer, help him to successfully execute the given task.

```

import _____ # Line 1

def addCsvFile(Name,Mobile): # to write / add data into the CSV file

    f=open('contacts.csv','_____') # Line 2
    newFileWriter = csv.writer(f)
    newFileWriter.writerow([Name,Mobile])
    f.close()

#csv file reading code
def readCsvFile(): # to read data from CSV file with
    open('contacts.csv','r') as newFile:

        newFileReader = csv._____ (newFile) # Line 3 for row in
        newFileReader:

            print (row[0],row[1])

    newFile._____ # Line 4

addCsvFile("Arjun","8548587526")

```

```
addCsvFile("Arunima","6585425855")
```

```
addCsvFile("Frieda","8752556320")
```

```
readCsvFile() #Line 5
```

- a) Name the module he should import in Line 1. (1)
import csv
- b) In which mode, Sanjay should open the file to add data into the file (1)
a or a+
- c) Fill in the blank in Line 3 to read the data from a csv file. (1)
reader
- d) Fill in the blank in Line 4 to close the file. (1)
close()
- a) Write the output he will obtain while executing Line 5. (1)
Arjun 8548587526
Arunima 6585425855
Frieda 8752556320

.....

Ashok Kumar of class 12 is writing a program to create a CSV file "empdata.csv" with empid, name and mobile no and search empid and display the record. He has written the following code. As a programmer, help him to successfully execute the given task.

```
import _____ #Line1
fields=['empid','name','mobile_no']
rows=[['101','Rohit','8982345659'],['102','Shaurya','8974564589'],
      ['103','Deep','8753695421'],['104','Prema','9889984567'],
      ['105','Lakshya','7698459876']]
filename="empdata.csv"
with open(filename,'w',newline=") as f:
    csv_w=csv.writer(f,delimiter=',')
    csv_w._____ #Line2
    csv_w._____ #Line3

with open(filename,'r') as f:
    csv_r=_____ (f,delimiter=',') #Line4
    ans='y'
    while ans=='y':
        found=False
        empid=(input("Enter employee id to search="))
        for row in csv_r:
            if len(row)!=0:
                if _____==empid: #Line5
                    print("Name : ",row[1])
                    print("Mobile No : ",row[2])
                    found=True

                break

        if not found:
            print("Employee id not found")
    ans=input("Do you want to search more? (y)")
```

- (a) Name the module he should import in Line 1. 1
- (b) Write a code to write the fields (column heading) once from fields list in Line2. 1
- (c) Write a code to write the rows all at once from rows list in Line3. 1
- (d) Fill in the blank in Line4 to read the data from a csv file. 1
- (e) Fill in the blank to match the employee id entered by the user with the empid of record from a file in Line5. 1

Answers:

- a) csv
- b) writerow(fields)
- c) writerows(rows)
- d) csv.reader
- e) row[0]

Write a function in python to count the number lines in a text file 'Country.txt' 3 which is starting with an alphabet 'W' or 'H'. If the file contents are as follows:

Whose woods these are I think I know.
His house is in the village though;
He will not see me stopping here
To watch his woods fill up with snow.

The output of the function should be:

W or w : 1

H or h : 2

OR

Write a user defined function to display the total number of words present in the file.

A text file "Quotes.Txt" has the following data written in it:

Living a life you can be proud of doing your best Spending your time with people and activities that are important to you Standing up for things that are right even when it's hard Becoming the best version of you.

The countwords() function should display the output as:

Total number of words : 40

ans

```
def count_W_H():
    f = open ("Country.txt", "r")
    W,H = 0,0
    r = f.read()
    for x in r:
        if x[0] == "W" or x[0] == "w":
            W=W+1
        elif x[0] == "H" or x[0] == "h":
            H=H+1
    f.close()
    print ("W or w :", W)
    print ("H or h :", H)
```

OR

```
def countwords():
    s = open("Quotes.txt","r")
    f = s.read()
    z = f.split ()
    count = 0
    for l in z:
        count = count + 1
    print ("Total number of words:", count)
```

Note: Using of any correct code giving the same result is also accepted.

Write a function AMCount() in Python, which should read each character of a text file STORY.TXT, should count and display the occurrence of alphabets A and M (including small cases a and m too). Example:

If the file content is as follows:

Updated information

As simplified by official websites.

The EUCount() function should display the output as:

A or a:4

M or m :2

Write a function in Python that counts the number of "The" or "This" words present in a text file "MY_TEXT_FILE.TXT".

Note: (The comparison should be case insensitive)

Ans

```
def displayMeMy():
    um=0
```

```

f=open("story.txt","rt")
N=f.read()
M=N.split()
for x in M:
    if x=="Me" or x=="My":
        print(x)
        num=num+1
f.close()
print("Count of Me/My in file:",num)

```

Or

```

def count_A_M():
    f=open("story.txt","r")
    A,M=0,0
    r=f.read(
    )
    for x in
    r:
        if x[0]=="A" or x[0]=="a" :
            A=A+1
        elif x[0]=="M" or x[0]=="m":
            M=M+1
    f.close()
    print("A or a: ",A)
    print("M or m: ",M)

```

Note : Using of any correct code giving the same result is also accepted.

```
num_words = 0
```

```
with open('MY_TEXT_FILE.TXT', 'r') as f:
```

```
    for line in f:
```

```
        words = line.split()
```

```
        for word in words:
```

```
            if word.upper()=='THE' or word.upper()=='THIS' :
```

```
                num_words+=1
```


print(num_words)

OR

Write a function VowelCount() in Python, which should read each character of a text file MY_TEXT_FILE.TXT, should count and display the occurrence of alphabets vowels.

Example:

If the file content is as follows: Updated information

As simplified by official websites.

The VowelCount() function should display the output as:

A or a:4

E or e :4

I or l :8

O or o : 0

U or u: 1

def VowelCount():

count_a=count_e=count_i=count_o=count_u=0

with open('MY_TEXT_FILE.TXT', 'r') as f:

for line in f:

for letter in line:

if letter.upper()=='A':

count_a+=1

elif letter.upper()=='E':

count_e+=1

elif letter.upper()=='I':

count_i+=1

elif letter.upper()=='O':

count_o+=1

elif letter.upper()=='U':

count_u+=1

print("A or a:", count_a)

```

print("E or e:", count_e)
print("I or i:", count_i)
print("O or o :", count_o)
print("U or u:", count_u)

```

or any other correct logic

35.	<p>Write a method/function <code>COUNTLINES_ET()</code> in python to read lines from a text file <code>REPORT.TXT</code>, and <code>COUNT</code> those lines which are starting either with 'E' and starting with 'T' respectively. And display the Total count separately.</p> <p>For example: if <code>REPORT.TXT</code> consists of "ENTRY LEVEL OF PROGRAMMING CAN BE LEARNED FROM PYTHON. ALSO, IT IS VERY FLEXIBLE LANGUGAE. THIS WILL BE USEFUL FOR VARIETY OF USERS."</p> <p>Then, Output will be: No. of Lines with E: 1 No. of Lines with T: 1</p> <p style="text-align: center;">OR</p> <p>Write a method/function <code>SHOW_TODO()</code> in python to read contents from a text</p>	3
-----	--	---

	<p>file <code>ABC.TXT</code> and display those lines which have occurrence of the word "TO" or "DO".</p> <p>For example : If the content of the file is "THIS IS IMPORTANT TO NOTE THAT SUCCESS IS THE RESULT OF HARD WORK. WE ALL ARE EXPECTED TO DO HARD WORK. AFTER ALL EXPERIENCE COMES FROM HARDWORK."</p> <p>The method/function should display:</p> <ul style="list-style-type: none"> • THIS IS IMPORTANT TO NOTE THAT SUCCESS IS THE RESULT OF HARD WORK. • WE ALL ARE EXPECTED TO DO HARD WORK. 	
--	---	--

```
def COUNTLINES_ET():
    f=open("REPORT.TXT","r")
    lines=f.readlines()
    LineE=0
    LineT=0
    for i in lines:
        if i[0]=='E':
            LineE+=1
        elif i[0]=='T':
            LineT+=1

    print("No. of Lines with E:",LineE)
    print("No. of Lines with T:",LineT)

COUNTLINES_ET()
```

.5 mark for correct function header.
 .5 mark for correct opening of file.
 1.5 mark for any correct logic & it's code.
 .5 mark for printing correct output.

OR

```
def SHOW_TODO():
    f=open("ABC.TXT","r")
    lines=f.readlines()

    for i in lines:
        if "TO" in i or "DO" in i:
            print(i)

SHOW_TODO()
```

Write a function in Python that counts the number of "Me" or "My" words present in a text file "STORY.TXT". If the "STORY.TXT" contents are as follows:

My first book was Me and My Family.

It gave me chance to be Known to the world.

The output of the function should be: Count of Me/My in file: 4

OR

Write a function AMCount() in Python, which should read each character of a text file STORY.TXT, should count and display the occurrences of alphabets A and M (including small cases a and m too).

Example: If the file content is as follows:

Updated information As simplified by official websites.

The AMCount() function should display the output as: A or a: 4 M or m :2

```
def displayMeMy():
    num=0
    f=open("story.txt","rt")
    N=f.read()
    M=N.split()
    for x in M:
```

```

if x=="Me" or x=="My":
    print(x)
    num=num+1
f.close()
print("Count of Me/My in file:",num)

```

OR

```

def AMCount():
    f=open("story.txt","r")
    A,M=0,0
    r=f.read()
    for x in r:
        if x[0]=="A" or x[0]=="a" :
            A=A+1

    elif x[0]=="M" or x[0]=="m":
        M=M+1
    f.close()
    print("A or a: ",A)
    print("M or m: ",M)

```

40. A binary file named "EMP.dat" has some records of the structure
 [EmpNo, EName, Post, Salary] 5
- (a) Write a user-defined function named NewEmp() to input the details of a new employee from the user and store it in EMP.dat.
- (b) Write a user-defined function named SumSalary(Post) that will accept an argument the post of employees & read the contents of EMP.dat and calculate the SUM of salary of all employees of that Post.

OR

A binary file named "TEST.dat" has some records of the structure
 [TestId, Subject, MaxMarks, ScoredMarks]

Write a function in Python named DisplayAvgMarks(Sub) that will accept a subject as an argument and read the contents of TEST.dat. The function will calculate & display the Average of the ScoredMarks of the passed Subject on screen.

```
import pickle

def NewEmp():
    print("Enter the details of an employee:")
    no=int(input("Enter the Empno"))
    name=input("Enter the name")
    post=input("Enter the post")
    sal=float(input("Enter the salary"))

    erec=[no,name,post,sal]
    f=open("EMP.dat","ab")
    pickle.dump(erec,f)
    print("New record saved")
    f.close()

def SumSalary(Post):
    f=open("EMP.dat","rb")
    count=0
    sum=0

    try:
        while True:
            rec=pickle.load(f)
            if rec[3]==Post:
                sum+=rec[4]
    except EOFError:
        f.close()

    print("Sum of Salary :",sum)
```

```

def DisplayAvgMarks (Sub) :
    f=open ("ABC.dat", "rb+")
    count=0
    sum=0

    try:
        while True:
            pos=f.tell()
            rec=pickle.load(f)
            print (rec)
            if rec[1]==Sub:
                sum+=rec[3]
                count+=1
    except EOFError:
        f.close()

    print ("Average marks scored :",sum/count)

```

.....

A binary file "Book.dat" has structure [BookNo, Book_Name, Author, Price].

- i. Write a user defined function CreateFile() to input data for a record and add to Book.dat .
- ii. Write a function CountRec(Author) in Python which accepts the Author name as parameter and count and return number of books by the given Author are stored in the binary file "Book.dat"

OR

A binary file "STUDENT.DAT" has structure (admission_number, Name, Percentage). Write a function countrec() in Python that would read contents of the file "STUDENT.DAT" and display the details of those students whose percentage is above 75. Also display number of students scoring above 75%

Ans

```

import pickle
def createFile():
    fobj=open("Book.dat","ab")
    BookNo=int(input("Book Number : "))
    Book_name=input("Name :")
    Author = input("Author:" )
    Price = int(input("Price : "))
    rec=[BookNo,Book_Name,Author,Price]
    pickle.dump(rec,fobj)
    fobj.close()

```

```

def CountRec(Author):
    fobj=open("Book.dat","rb")
    num = 0

```

```

try:
    while True:
        rec=pickle.load(fobj)
        if Author==rec[2]:
            num = num + 1
except:
    fobj.close()
return num

```

OR

```

import pickle
def CountRec():
    fobj=open("STUDENT.DAT","rb")
    num = 0
    try:
        while True:
            rec=pickle.load(fobj)
            if rec[2] > 75:
                print(rec[0],rec[1],rec[2],sep="\t")
                num = num + 1
    except:
        fobj.close()
    return num

```

.....

40 Write a function SCOUNT() to read the content of binary file "NAMES.DAT" and display number of records (each name occupies 20 bytes in file) where name begins from "S" in it.

For. e.g. if the content of file is:

```

SACHIN
AMIT
AMAN
SUSHIL
DEEPAK
HARI SHANKER

```

5

Function should display

Total Names beginning from "S" are 2

OR

Consider the following CSV file (emp.csv):

Sl,name,salary

1,Peter,3500

2,Scott,4000
 3,Harry,5000
 4,Michael,2500
 5,Sam,4200

Write Python function DISPEMP() to read the content of file emp.csv and display only those records where salary is 4000 or above

Ans

```
def SCOUNT():
    s=''
    count=0
    with open('Names.dat', 'rb') as f:
        while(s):
            s = f.read(20)
            s=s.decode( )
            if len(s)!=0:
                if s[0].lower()=='s':
                    count+=1
    print('Total names beginning from "S" are ',count)
```

OR

```
import csv
def DISPEMP():
    with open('emp.csv') as csvfile:
        myreader = csv.reader(csvfile,delimiter=',')
        print("%10s"% "EMPNO", "%20s"% "EMP NAME", "%10s"% "SALARY")
        for row in myreader:
            if int(row[2])>4000:

print("%10s"%row[0],"%20s"%row[1],"%10s"%row[2])
```

.....
 A binary file "Book.dat" has structure [BookNo, Book_Name, Author, Price].

- i. Write a user defined function *CreateFile()* to input data for a record and add to Book.dat .
- ii. Write a function *CountRec(Author)* in Python which accepts the Author name as parameter and count and return number of books by the given Author are stored in the binary file

"Book.dat"

OR

A binary file "STUDENT.DAT" has structure (admission_number, Name, Percentage). Write a function *countrec()* in Python that would read contents of the file "STUDENT.DAT" and display the details of those students whose percentage is above 75. Also display number of students scoring above 75%

```
import pickle

def createFile():

    fobj=open("Book.dat","ab")

    BookNo=int(input("Book Number : "))

    Book_name=input("Name :")

    Author = input("Author: ")

    Price = int(input("Price : "))

    rec=[BookNo,Book_Name,Author,Price]

    pickle.dump(rec,fobj)

    fobj.close()
```

(ii)

```
def CountRec(Author):

    fobj=open("Book.dat","rb")

    num = 0

    try:

        while True:

            rec=pickle.load(fobj)
```

```

    if Author==rec[2]:
        num = num + 1
except:
    fobj.close()
return num

```

OR

```

import pickle
def CountRec(:
    fobj=open("STUDENT.DAT","rb")
    num = 0
    try

        while True:
            rec=pickle.load(fobj)
            if rec[2] > 75:
                print(rec[0],rec[1],rec[2],sep="\t")
                num = num + 1
    except:
        fobj.close()
    return num

```

Given a binary file "emp.dat" has structure (Emp_id, Emp_name, 5 Emp_Salary). Write a function in Python countsal() in Python that would read contents of the file "emp.dat" and display the details of those employee whose salary is greater than 20000.

OR

A binary file "Stu.dat" has structure (rollno, name, marks).

- (i) Write a function in Python add_record() to input data for a record and add to Stu.dat.
- (ii) Write a function in python Search_record() to search a record from binary file "Stu.dat" on the basis of roll number.

```

import pickle
def countsal():
    f = open ("emp.dat", "rb")
    n = 0
    try:
        while True:
            rec = pickle.load(f)
            if rec[2] > 20000:
                print(rec[0], rec[1], rec[2], sep="\t")
                num = num + 1
    except:
        f.close()

```

```

import pickle
def add_record():
    fobj = open("Stu.dat","ab")
    rollno =int(input("Roll no:"))
    name = int(input("Name:"))
    marks = int(input("Marks:"))
    data = [rollno, name, marks]
    pickle.dump(data,fobj)
    fobj.close()

def Search_record():
    f = open("Stu.dat", "rb")

```

```

stu_rec = pickle.load(f)
found = 0
rno = int(input("Enter the roll number to search:"))
try:
    for R in stu_rec:
        if R[0] == rno:
            print ("Successful Search:, R[1], "Found!")
            found = 1
            break
except:
    if found == 0:
        print ("Sorry, record not found:")

```

Computational Thinking and Programming -2

Data Structure in Python (marks 3 x 2 questions = 6 marks)

Basic concepts of Data Structure

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.

Stack : It is a linear data structure which follow the operation LIFO (Last In First Out) operation.

Marks - 3 (Programs)

1.	Write a Python function to sum all the numbers in a list and return a total. <i>Sample List: (8, 2, 3, 0, 7)</i> <i>Expected Output: 20</i>
Ans.	<pre>def sum(numbers): total = 0 for x in numbers: total += x return total print(sum((8, 10, 3, 0, 7)))</pre>
2	Write a function in REP which accepts a list of integers and its size as arguments and replaces elements having even values with its half and elements having odd values with twice its value . eg: if the list contains 3, 4, 5, 16, 9 then the function should rearranged list as 6, 2,10,8, 18
Ans.	<pre>def REP (L, n): for i in range(n): if L[i] % 2 == 0: L[i] /= 2 else: L[i] *= 2 print (L)</pre>
3	Write code in Python to calculate and display the frequency of each item in a list.
Ans.	<pre>L=[10,12,14,17,10,12,15,24,27,24] L1=[] L2=[] for i in L: if i not in L2: c=L.count(i) L1.append(c) L2.append(i) print('Item','\t\t','frequency') for i in range(len(L1)): print(L2[i],'\t\t', L1[i])</pre>
4.	Write a function bubble_sort (Ar, n) in python, Which accepts a list Ar of numbers and n is a numeric value by which all elements of the list are sorted by Bubble sort Method.
Ans:	<pre>def bubble_sort(Ar, n): print ("Original list:", Ar) for i in range(n-1): for j in range(n-i-1): if Ar[j] > Ar[j+1]:</pre>

	<pre> Ar[j], Ar[j+1] = Ar[j+1], Ar[j] print ("List after sorting :", Ar) </pre>
5	Write function insertinSort(arr) to sort the elements.
Ans.	<pre> def insertionSort(arr): for i in range(1, len(arr)): key = arr[i] j = i-1 while j >=0 and key < arr[j] : arr[j+1] = arr[j] j -= 1 arr[j+1] = key # Driver Code arr = [12, 11, 13, 5, 6] insertionSort(arr) print ("Sorted array is:") for i in range(len(arr)): print (arr[i]) </pre>
6.	Write a function binary_search (arr, x) in python to search an element using binary method,
Ans.	<pre> def binary_search(arr, x): low = 0 high = len(arr) - 1 mid = 0 while low <= high: mid = (high + low) // 2 if arr[mid] < x: low = mid + 1 elif arr[mid] > x: high = mid - 1 else: return mid return -1 arr = [2, 3, 4, 10, 40] x = 10 result = binary_search(arr, x) if result != -1: print("Element is present at index", str(result)) else: print("Element is not present in array") </pre>
7.	Write a program for linear search.
Ans	<pre> def linear_search(L, item) : n=len(L) f=1 for i in range(n): if L[i]==item: </pre>

	<pre> print("Element found at the position :", i+1) f=0 break if f==1 : print("Element not Found") </pre>
8	Write a function AddCustomer(Customer) in Python to add a new Customer information NAME into the List of CStack and display the information.
Ans	<pre> def AddCustomer(Customer): CStake.append(Customer) If len(CStack)==0: print ("Empty Stack") else: print (CStack) </pre>
9	Write a function DeleteCustomer() to delete a Customer information from a list of CStack. The function delete the name of customer from the stack
Ans	<pre> def DeleteCustomer(): if (CStack ==[]): print("There is no Customer!") else: print("Record deleted:",CStack.pop()) </pre>
10	Write a function in Python PUSH(Arr), where Arr is a list of numbers. From this list push all numbers divisible by 5 into a stack implemented by using a list. Display the stack if it has at least one element, otherwise display appropriate error message.
Ans.	<pre> def PUSH(Arr): s=[] for x in range(0,len(Arr)): if Arr[x]%5==0: s.append(Arr[x]) if len(s)==0: print("Empty Stack") else: print(s) </pre>
11	Write a function in Python popStack(st), where st is a stack implemented by a list of numbers. The function returns the value deleted from the stack
Ans.	<pre> def popStack(st) : if len(st)==0: print("Underflow") else: L = len(st) val=st[L-1] print(val) st.pop(L-1) </pre>

Computer Networks- I

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 means 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 in dynamic 3D environments.

Ans 10. 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 means 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.

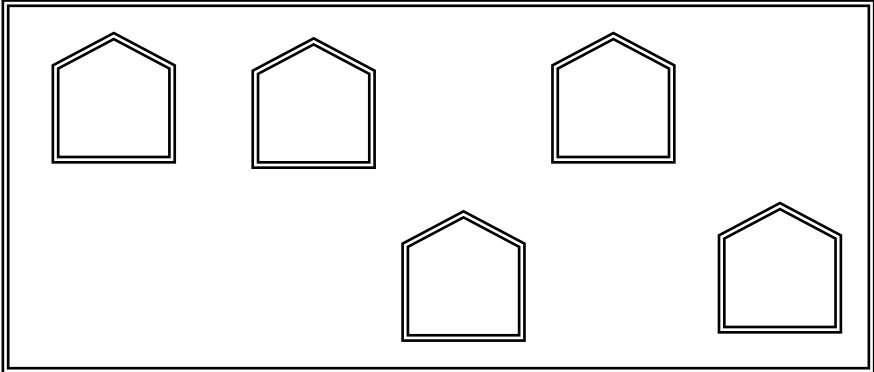
Ans 16. Advantage: Easy to connect a computer or peripheral to a linear bus. Requires less cable length than a star topology.

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).

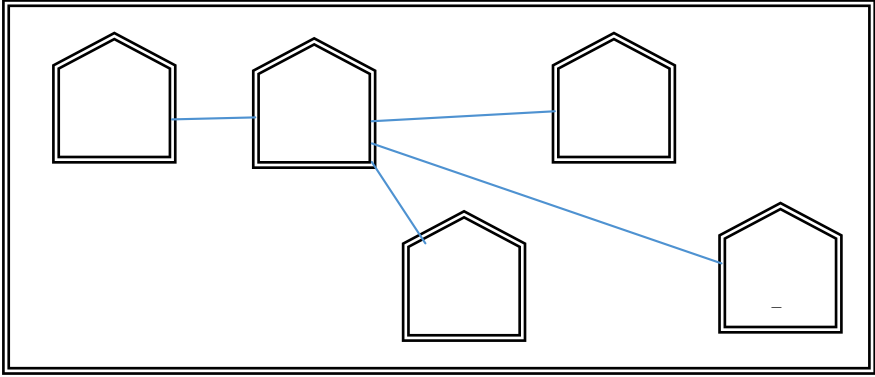
COMPUTER SCIENCE – NEW (083)
SAMPLE QUESTION PAPER – SET-1
(2020-21) CLASS- XII

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 terms i)NFC ii)IMAP iii)CDMA iv)MAC v)VoIP vi)URL	3																														
	H)	<p>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:</p>  <table border="1" data-bbox="342 1245 859 1656"> <thead> <tr> <th colspan="2">Distance between various buildings</th> </tr> </thead> <tbody> <tr> <td>A to B</td> <td>50 Mts</td> </tr> <tr> <td>B to C</td> <td>30 Mts</td> </tr> <tr> <td>C to D</td> <td>30 Mts</td> </tr> <tr> <td>D to E</td> <td>35 Mts</td> </tr> <tr> <td>E to C</td> <td>40 Mts</td> </tr> <tr> <td>D to A</td> <td>120 Mts</td> </tr> <tr> <td>D to B</td> <td>45 Mts</td> </tr> <tr> <td>E to B</td> <td>65 Mts</td> </tr> </tbody> </table> <table border="1" data-bbox="883 1661 1227 1885"> <thead> <tr> <th colspan="2">No of computers</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>55</td> </tr> <tr> <td>B</td> <td>180</td> </tr> <tr> <td>C</td> <td>60</td> </tr> <tr> <td>D</td> <td>55</td> </tr> <tr> <td>E</td> <td>70</td> </tr> </tbody> </table> <p>(a) Suggest a possible cable layout for connecting the</p>	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	5
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		<p>buildings.</p> <p>(b) Suggest the most suitable place to install the server of this organization.</p> <p>(c) Suggest the placement of the following devices with justification.</p> <p>(i.) Hub/Switch</p> <p>(ii.) Repeater</p> <p>(d) The company wants to link its head office in 'A' building to its Office in Sydney</p> <p>(i) Which type of transmission medium is appropriate for such a link?</p> <p>(ii) What type of network this connection result into?</p> <p>(e) Suggest topology used for above networking.</p>	
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Marking Scheme

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)	<p>Email System comprises of following components</p> <ul style="list-style-type: none"> • Mailer • Mail Server • Mailbox <p>Mailer: It is also called mail program,mail application or mail client .It allows us to manage ,read and compose email</p> <p>Mail 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 lost</p> <p>Mailboxes :Mailboxes is generally a folder that contains emails and information about them.</p>	2
	F)	<p>IPV4 Internet is protocol version 4 and IP6 is Internet protocol version 6</p> <p>IPv4 is 32 bit and IPv6 is 128 bit</p> <p>IPv6 is still in transition phase and it will expected to replace IPV4</p>	2
	G)	<p>Expand the following terms</p> <p>i) NFC (Near Field Communication)</p> <p>ii) IMAP (Internet Message Access Protocol)</p> <p>iii) CDMA (code division multiple access)</p> <p>iv) MAC (Media Access Control)</p> <p>v) VoIP (Voice Over Internet Protocol)</p> <p>vi) URL (Uniform resource locator)</p>	1/2x6=3

H)	a)	 <p>b) Building B c) i) Hub/Switch is placed in each building ii) Repeater is placed between D TO A d) i) Satellite Communication ii) WAN e.) STAR</p>	1+1+1+1+1

COMPUTER SCIENCE – NEW (083)**SAMPLE QUESTION PAPER – SET-2****(2020-21) CLASS- XII**

Q.3	a	Expand the following (i) PPP (ii) TDMA (ii) 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 (i) to troubleshoot internet connection problem (ii) to see the IP address associated with a domain name (iii) to look up registration record associated with a domain name (iv) to test the speed of internet connection	2																				
	e	Define the terms i) Cladding ii) attenuation iii) Telnet	3																				
	g	<p>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.</p> <div data-bbox="253 1026 1317 1241" style="border: 2px solid black; padding: 10px; margin: 10px 0;"> <pre> graph TD A[Conference block] --- B[Human Resource Block] C[Finance Block] --- B </pre> </div> <p>Block to Block distance (in Meters):</p> <table border="1" data-bbox="245 1346 1338 1528"> <thead> <tr> <th>Block From</th> <th>Block</th> <th>Distance</th> </tr> </thead> <tbody> <tr> <td>Human Resource</td> <td>Conference</td> <td>60</td> </tr> <tr> <td>Human Resource</td> <td>Finance</td> <td>60</td> </tr> <tr> <td>Conference</td> <td>Finance</td> <td></td> </tr> </tbody> </table> <p>Expected Number of Computer installed in each building block:</p> <table border="1" data-bbox="480 1612 1101 1835"> <thead> <tr> <th>Block</th> <th>Computer</th> </tr> </thead> <tbody> <tr> <td>Human Resource</td> <td>125</td> </tr> <tr> <td>Finace</td> <td>25</td> </tr> <tr> <td>Confrence</td> <td>60</td> </tr> </tbody> </table> <p>i) What is the most suitable block to install server? ii) What will be the best possible connectivity out of the following to connect its new office in Bengaluru With its London-based office ?</p>	Block From	Block	Distance	Human Resource	Conference	60	Human Resource	Finance	60	Conference	Finance		Block	Computer	Human Resource	125	Finace	25	Confrence	60	5
Block From	Block	Distance																					
Human Resource	Conference	60																					
Human Resource	Finance	60																					
Conference	Finance																						
Block	Computer																						
Human Resource	125																						
Finace	25																						
Confrence	60																						

	ii) Ethernet Cable iii) Switch iv) Linux and Open Solaris v) Star topology 1 mark for each correct answer	
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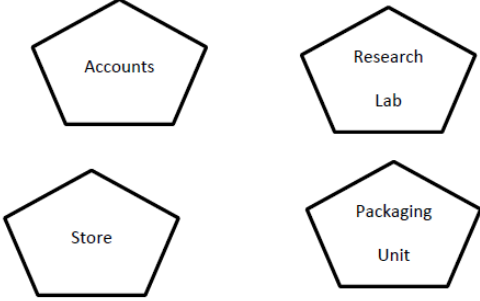
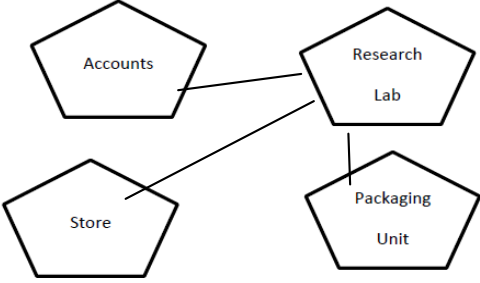
COMPUTER SCIENCE – NEW (083)
SAMPLE QUESTION PAPER – SET-3
(2020-21) CLASS- XII

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 : (i) SMTP (ii) SIM (iii) Lifi (iv) 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: (i) 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. (ii) A person complains that his/her debit/credit card is safe with him still somebody has done shopping /ATM transaction on this card. (iii) A person complains that somebody has created a fake profile of Facebook and defaming his/her character with abusive comments and pictures.	3
	h	<p>Sharma Medicos Center has set up its new center in Dubai. It has four buildings as shown in the diagram given below:</p> <div style="text-align: center;"> </div> <p>Distance between various building are as follows:</p>	5

	Accounts to research Lab	55m	Number of Computers			
	Accounts to store	150m			Accounts	25
	Store to packaging unit	160m			Research Lab	100
	Packaging unit to research lab	60m			Store	15
	Accounts to packaging unit	125m			Packaging Unit	60
	Store to research lab	180m				
As a network expert, provide the best possible answer for the following queries:						
i) Suggest a cable layout of connections between the buildings.						
ii) 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: i. a) Repeater b) Hub/Switch						
iv) Suggest a system (hardware/software) to prevent unauthorized access to or from the network.						
v) Suggest best topology use for above networking.						

Marking Scheme

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 : (v) SMTP (vi) SIM (vii) Lifi (viii) GPRS	2
ANS		SIMPLE MAIL TRANSFER PROTOCOL SUBSCRIBER IDENTITY MODULE OR SUBSCRIBER IDENTIFICATION MODULE LIGHT FIDILITY GENERAL 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: (iv) 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. (v) A person complains that his/her debit/credit card is safe with him still somebody has done shopping /ATM transaction on this card. (vi) 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	<p>SHARMA Medicos Center has set up its new center in Dubai. It has four buildings as shown in the diagram given below:</p>  <p>Distance between various building are as follows:</p> <table border="1" data-bbox="272 825 761 1024"> <tr> <td>Accounts to research Lab</td> <td>55m</td> </tr> <tr> <td>Accounts to store</td> <td>150m</td> </tr> <tr> <td>Store to packaging unit</td> <td>160m</td> </tr> <tr> <td>Packaging unit to research lab</td> <td>60m</td> </tr> <tr> <td>Accounts to packaging unit</td> <td>125m</td> </tr> <tr> <td>Store to research lab</td> <td>180m</td> </tr> </table> <table border="1" data-bbox="776 831 1216 1024"> <thead> <tr> <th colspan="2">Number of Computers</th> </tr> </thead> <tbody> <tr> <td>Accounts</td> <td>25</td> </tr> <tr> <td>Research Lab</td> <td>100</td> </tr> <tr> <td>Store</td> <td>15</td> </tr> <tr> <td>Packaging Unit</td> <td>60</td> </tr> </tbody> </table> <p>As a network expert, provide the best possible answer for the following queries:</p> <ol style="list-style-type: none"> Suggest a cable layout of connections between the buildings. Suggest the most suitable place (i.e. buildings) to house the server of this organization. Suggest the placement of the following device with justification: <ol style="list-style-type: none"> Repeater Hub/Switch Suggest a system (hardware/software) to prevent unauthorized access to or from the network. Suggest best topology use for above networking. 	Accounts to research Lab	55m	Accounts to store	150m	Store to packaging unit	160m	Packaging unit to research lab	60m	Accounts to packaging unit	125m	Store to research lab	180m	Number of Computers		Accounts	25	Research Lab	100	Store	15	Packaging Unit	60	5
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ANS	<p>i)</p>  <ol style="list-style-type: none"> Research Lab. Hub/Switch is required in each buildings. Repeater may be used in between store to research Lab due to long distance. Use firewell for security issues. Star topology 																							

Chapter: Network Security Concepts

1 Mark

1. What is virus?

Ans. Viruses are small programs that are written intentionally to damage the data and files on a system. These programs are spread from one computer system to another which interrupts the normal functioning of a computer.

2. What is the difference between Virus and Worm?

Ans. The Virus attaches itself to executable files and transfers from one system to the other. While, A Worm is a malicious program that replicates itself and can spread to different computers via Network.

For Virus, Host is needed for spreading, While Worm doesn't need a host to replicate from one computer to another computer.

3. What is Cookies?

Ans. A cookie is basically small file containing data that is stored by the website on the user's hard disk. Cookie identifies users based on information stored in it and prepares web pages according to user.

4. What is firewall?

Ans. A firewall is software that protects the private network from unauthorized user access. The firewall filters the information coming from the internet to the network or a computer to protect the system.

5. What is Hacking?

Ans. Hacking is an attempt to exploit a computer system or a private network inside a computer by gaining unauthorized access to data in a system or compute.

6. Differentiate between cracking and hacking.

Ans. Cracking is defined as an attempt to remove the copy protections inserted into software programs by editing a programs source code, whereas Hacking is gaining unauthorized access to data in a system or compute.

7. What is cyber crime?

Ans. When any crime is committed over the internet, it is referred to as Cyber Crime.

2 Marks

1. What do you mean by IP Address? How is it useful in Computer

Ans. An IP address is an address assigned to the computer, when it is connected to the network or internet. During communication over networks, It is used to uniquely identify the computer or device on the network to route the message to particular device in the network.

2. How are Trojan Horses different from Worms?

Ans. A Worm is a form of malware that replicates itself and can spread to different computers via Network. While Trojan Horse is a form of malware that capture some important information about a computer system or a computer network.

Worm doesn't need a host to replicate from one computer to another. Whereas Trojan Horse require host is needed for spreading.

3. Define India's IT Act

Ans. The Information Technology Act 2000 (also known as ITA-2000 or IT Act) is an Act of the Indian Parliament (No. 21 of 2000) notified on October 17, 2000.

"An Act to provide legal recognition for transactions carried out by means of electronic data interchange and other means of electronic communication, commonly referred to as 'electronic commerce', which involve the use of alternatives to paper-based methods of communication and

storage of information to facilitate electronic filing of documents with the Government agencies and further to amend the Indian Penal Code, the Indian Evidence Act 1872, the Banker's Book Evidence Act, 1891 and the Reserve Bank of India Act, 1934 and for matters connected therewith of incidental thereto."

3 Marks

1. What is IPR? Explain IPR.

Ans. IPR stands for intellectual property rights which is the right to intangible property such as music, literature and artistic work created by a person. Intellectual property (IP) is a legal term that refers to creations of the mind. Intellectual property rights may be protected by patents, copyrights, industrial design rights, trademarks, trade dress and, in some jurisdictions, trade secrets. The owner of intellectual property is the person who has developed the product or the organization which has funded it. Safeguarding intellectual property from illegal use can be done by giving some exclusive rights to the owner of that property. These rights also promote creativity and dissemination and application of its result and encourage fair trading which helps in developing social and economic areas of a country.

2. Write Characteristics of Virus

Ans.

- (a) Speed of a computer system becomes slower than normal.
- (b) Computer system frequently hangs up.
- (c) Computer restarts automatically after every few minutes.
- (d) Various applications of computer do not function properly.
- (e) Dialog boxes, menus and other error message windows are distorted.

3. Write Characteristics of Worm

Ans.

- (a) It replicates itself.
- (b) Unlike virus, worm does not require host and it is self-contained.
- (c) It spreads across networks through email, instant messaging or junk mails.
- (d) Worms run independently.

5 Marks

1. Explain various types of Cyber Crimes.

Ans. When any crime is committed over the internet, it is referred to as cyber crime. There are many types of cyber crimes and the most common ones are explained below:

1. **Hacking:** Gaining knowledge about someone's private and sensitive information by getting access to their computer system illegally is known as hacking. This is different from ethical hacking, which many organizations use to check their internet security protection. In hacking, a criminal uses a variety of software so as to enter a person's computer and that person may not be aware of his computer being accessed from a remote location

2. **Cyber Stalking:** Cyber stalking is a kind of online harassment where the victim gets unwanted abusive online messages and emails. Typically, these stalkers know their victims and instead of resorting to offline stalking, they use the internet to stalk. If they notice that cyber stalking is not having the desired effect, they begin offline stalking along with cyber stalking to make their victim's life miserable.

3. **Identity Theft:** This has become a major problem with people using the internet for cash transactions and banking services. In this cyber crime, a criminal accesses data about a person's bank account, credit card, social security card, debit card and other sensitive

information to gain money or to buy things online in the victim's name that can result in major financial loss for the victim and even spoil the victim's credit history

4. Malicious Software: These are internet-based software or programs known as pirated software that are used to disrupt proper functioning of the network. The software is used to steal sensitive information or data that can cause damage to existing software in a computer system.

5. Electronic Funds Transfer Fraud: A cyber crime occurs when there is a transfer of funds which may be intercepted and diverted. Valid credit card numbers can be hacked electronically and then misused by a fraudulent person or organization.

6. Defamation: It involves a cyber crime with the intent of lowering the dignity of someone by hacking into their email account and sending mails using vulgar language to an unknown person's account.

7. Denial of Service (DoS) Attacks: A DoS attack is an attack by which legitimate users of a computer are denied access or use of the resources of that computer. Generally, DoS attacks do not allow the attacker to modify or access information on the computer.

Chapter: Introduction to web services

1 Mark

1. URL stands for _____

Ans. Uniform Resource Locator

2. What is WWW?

Ans. WWW stands for World Wide Web. It is an information service that can be used for sending and receiving information over the internet through interlinked hypertext documents.

3. What is spam?

Ans. Spam is an unwanted bulk mail which is sent by an unauthorized or unidentified person in order to eat the entire disk space. In non-malicious form, it floods the internet with many copies of the same message to be sent to a user which he may not otherwise receive.

4. What is website?

A website is a collection of various web pages, images, videos, audios or other kinds of digital assets that are hosted on one or several web servers. The web pages of a website are written using HTML.

2 Marks

1. Differentiate between HTML and XML

Ans. In HTML, both tag semantics and the tag set are fixed, whereas XML is a meta-language for describing markup language. HTML is case insensitive, whereas XML is case sensitive. HTML is used for presentation of the data, whereas XML is used for transfer of information.

2. What is Web Page? Which are its types?

Ans. A web page is an electronic document/page designed using HTML. It displays information in textual or graphical form.

A web page can be classified into two types:

Static web page: A web page which displays same kind of information whenever a user visits it is known as a static web page. A static web page generally has .htm or .html as extension.

Dynamic web page: An interactive web page is a dynamic web page. A dynamic web page uses scripting languages to display changing content on the web page. Such a page generally

has .php, .asp, or .jsp as extension.

3. Define web browser and web server.

Ans. Web Browser: A web browser is a software which is used for displaying the content on web page(s). It is used by the client to view websites. Examples of web browser—Google Chrome, Firefox, Internet Explorer, Safari, Opera, etc.

Web Server: A web server is a software which entertains the request(s) made by a web browser. A web server has different ports to handle different requests from web browser, like generally FTP request is handled at Port 110 and HTTP request is handled at Port 80. Example of web server is Apache.

4. Write a sample XML program.

Ans.

```
<?xml version="1.0">
<Client>
<Clientid>C100</Clientid>
<Clientname>Johnson</Clientname>
<Company>APPLE</Company>
</Client>
<Client>
<Clientid>C101</Clientid>
<Clientname>McGraw</Clientname>
<Company>HCL</Company>
</Client>
</xml>
```

3 Marks

1. What is HTTP protocol? Write main features of an HTTP.

Ans. HTTP stands for Hyper Text Transfer Protocol. It is a protocol is used to transfer hypertext documents over the internet. HTTP defines how the data is formatted and transmitted over the network. When an HTTP client (a browser) sends a request to an HTTP server (web server), the server sends responses back to the client.

The main features of an HTTP document are:

1. It is a stateless protocol; this means that several commands are executed simultaneously without knowing the command which is already executing before another command. 2. It is an object-oriented protocol that uses client server model. 3. The browser (client) sends request to the server, the server processes it and sends responses to the client. 4. It is used for displaying web pages on the screen.

2. Explain Domain Names

Ans.

Domain names make it easier to resolve IP addresses into names, for example, cbse.nic.in, google.com, meritnation.com, etc.

It is the system which assigns names to some computers (web servers) and maintains a database of these names and corresponding IP addresses.

A domain name consists of the following parts.

1. Top-level domain name or primary domain name, and
2. Sub-domain name(s).

For example,

In the domain name cbse.nic.in: in is the primary domain name nic is the sub-domain of in cbse is the sub-domain of nic. The top-level domains are categorized into following domain names:

Generic Domain Names

- com - commercial business
- edu - Educational institutions
- gov - Government agencies
- mil - Military
- net - Network organizations
- org - Organizations (non-profit)

Country Specific Domain Names

- .in - India
- au - Australia
- ca - Canada
- .ch - China
- .nz - New Zealand
- .pk - Pakistan
- .jp - Japan
- .us - United States of America

3. Explain Web Hosting.

Ans.

Web hosting is a service which is provided by companies to its clients to allow them to construct their own websites which are accessible to the internet users via World Wide Web. Such companies are known as web hosts. These companies provide space on a web server they own for use by their clients as well as provide internet connectivity.

The websites which are constructed display information for their organization in the form of web pages. The host may also provide an interface or control panel for managing the web server so as to add news and events related to their organization or for uploading some information which may be valuable for the internet users. A client can also use control panel for installing scripts as well as other modules and service applications like email. webhostingsitesindia.co.in is one of the top domain name registration and web hosting companies in India. It is the only hosting company which provides support in regional languages

Topic : RDBMS & SQL

1	Which command is used to add new column in existing table?	1
Ans.	ALTER TABLE	
2	Which clause is used to search for NULL values in any column?	1
Ans.	IS NULL	
3	Which command is used to see information like name of columns, data type, size etc. ?	1
Ans.	DESCRIBE OR DESC	
4	Which clause is used for pattern matching? What are the 2 main characters used matching the pattern?	1
Ans.	LIKE % (percent) and _ (underscore)	
5	Which clause is used to see the output of query in ascending or descending order?	1
Ans.	ORDER BY	
6	Which clause is used to eliminate the duplicate rows from output?	1
Ans.	DISTINCT	
7	What is the minimum number of column required in MySQL to create table?	1
Ans.	ONE (1)	
8	Which command is used to remove the table from database?	1
Ans.	DROP TABLE	
9	Which command is used to add new record in table?	1
Ans.	INSERT INTO	
10	Which option of ORDER BY clause is used to arrange the output in descending order?	1
Ans.	DESC	
11	Which command is used to change the existing information of table?	2
Ans.	UPDATE	
12	What is Primary Key?	2
Ans.	Primary key is used to uniquely identify each tuple of a relation. Any relation can have only one primary key.	
13	Raj is a database programmer, He has to write the query from EMPLOYEE table to search for the employee whose name begins from letter „R“, for this he has written the query as: SELECT * FROM EMPLOYEE WHERE NAME=„R%“; But the query is not producing the correct output, help Raj and correct the query so that he gets the desired output.	2
Ans.	SELECT * FROM EMPLOYEE WHERE NAME LIKE „R%“;	
14	Raj is a database programmer, He has to write the query from EMPLOYEE table to search for the employee who are not getting any commission, for this he has written the query as: SELECT * FROM EMPLOYEE WHERE commission=null; But the query is not producing the correct output, help Raj and correct the query so that he gets the desired output.	2
Ans.	SELECT * FROM EMPLOYEE WHERE commission IS null;	
15	Raj is a database programmer, has to write the query from EMPLOYEE table to search for the employee who are working in „Sales“ or „IT“ department, for this he has written the query as: SELECT * FROM EMPLOYEE WHERE department=„Sales“ or „IT“; But the query is not producing the correct output, help Raj and correct the query so that he gets the desired output.	2
Ans.	SELECT * FROM EMPLOYEE WHERE department=„Sales“ or department=„IT“; SELECT * FROM EMPLOYEE WHERE department IN (‘Sales’,‘IT’) OR	

16	The following query is producing an error. Identify the error and also write the correct query. SELECT * FROM EMP ORDER BY NAME WHERE SALARY >= 5000;	3																										
Ans.	As per MySQL, ORDER BY must be the last clause in SQL QUERY, and in this query ORDER BY is used before WHERE which is wrong, the correct query will be: SELECT * FROM EMP WHERE SALARY >= 5000 ORDER BY NAME;																											
17	If Table Sales contains 5 records and Raj executed the following queries; find out the output of both the query. (i) Select 100+200 from dual; (ii) Select 100+200 from Sales;	3																										
Ans.	(i) 300 (ii) 300 300 300 300 300																											
18	What is the difference between Equi-Join and Natural Join?	3																										
Ans.	In Equi join we compare value of any column from two tables and it will return matching rows. In Equi-join common column appears twice in output because we fetch using (*) not by specifying column name. for e.g. In Equi-join it is not mandatory to have same name for column to compare of both table In natural join also the matching rows will return. In natural join column will appear only once in output. Then name of column must be same in both table if we are performing natural join using the clause NATURAL JOIN.																											
19	Observe the given Table TEACHER and give the output of question (i) and (ii)																											
	<table border="1"> <thead> <tr> <th>TEACHER_CODE</th> <th>TEACHER_NAME</th> <th>DOJ</th> </tr> </thead> <tbody> <tr> <td>T001</td> <td>ANAND</td> <td>2001-01-30</td> </tr> <tr> <td>T002</td> <td>AMIT</td> <td>2007-09-05</td> </tr> <tr> <td>T003</td> <td>ANKIT</td> <td>2007-09-20</td> </tr> <tr> <td>T004</td> <td>BALBIR</td> <td>2010-02-15</td> </tr> <tr> <td>T005</td> <td>JASBIR</td> <td>2011-01-20</td> </tr> <tr> <td>T006</td> <td>KULBIR</td> <td>2008-07-11</td> </tr> </tbody> </table>	TEACHER_CODE	TEACHER_NAME	DOJ	T001	ANAND	2001-01-30	T002	AMIT	2007-09-05	T003	ANKIT	2007-09-20	T004	BALBIR	2010-02-15	T005	JASBIR	2011-01-20	T006	KULBIR	2008-07-11						
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	(i) SELECT TEACHER_NAME,DOJ FROM TEACHER WHERE TEACHER_NAME LIKE ,%1%' (ii) SELECT * FROM TEACHER WHERE DOJ LIKE ,%-09-%';	3																										
Ans	(i) <table> <thead> <tr> <th>TEACHER_NAME</th> <th>DOJ</th> </tr> </thead> <tbody> <tr> <td>-----</td> <td>-----</td> </tr> <tr> <td>AMIT</td> <td>2007-09-05</td> </tr> <tr> <td>ANKIT</td> <td>2007-09-20</td> </tr> <tr> <td>BALBIR</td> <td>2010-02-15</td> </tr> <tr> <td>JASBIR</td> <td>2011-01-20</td> </tr> <tr> <td>KULBIR</td> <td>2008-07-11</td> </tr> </tbody> </table> (ii) <table> <thead> <tr> <th>TEACHER_CODE</th> <th>TEACHER_NAME</th> <th>DOJ</th> </tr> </thead> <tbody> <tr> <td>-----</td> <td>-----</td> <td>-----</td> </tr> <tr> <td>T002</td> <td>AMIT</td> <td>2007-09-05</td> </tr> <tr> <td>T003</td> <td>ANKIT</td> <td>2007-09-20</td> </tr> </tbody> </table>	TEACHER_NAME	DOJ	-----	-----	AMIT	2007-09-05	ANKIT	2007-09-20	BALBIR	2010-02-15	JASBIR	2011-01-20	KULBIR	2008-07-11	TEACHER_CODE	TEACHER_NAME	DOJ	-----	-----	-----	T002	AMIT	2007-09-05	T003	ANKIT	2007-09-20	
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20	Which SQL function is used to get the average value of any column?	2																										
Ans.	AVG()																											
21	What is the difference between COUNT() and COUNT(*) function	3																										
Ans.	COUNT() function will count number of values in any column excluding the NULLs COUNT(*) will count number of rows in query output including NULLs																											

22	What is the full form of SQL?	1
Ans.	Structured Query Language	
23	Query to delete all record of table without deleting the table: a. DELETE TABLE TABLE_NAME b. DELETE FROM TABLE_NAME c. DROP TABLE TABLE_NAME d. DELETE TABLE FROM TABLE_NAME	2
Ans.	b. DELETE FROM TABLE_NAME	
24	Identify the wrong statement about UPDATE command a. If WHERE clause is missing all the record in table will be updated b. Only one record can be updated at a time using WHERE clause c. Multiple records can be updated at a time using WHERE clause d. None of the above	2
Ans.	b. Only one record can be updated at a time using WHERE clause	
25	Identify the correct statement(s) to drop a column from table a. DELETE COLUMN COLUMN_NAME b. DROP COLUMN COLUMN_NAME c. ALTER TABLE TABLE_NAME DROP COLUMN COLUMN_NAME d. ALTER TABLE TABLE_NAME DROP COLUMN_NAME	3
Ans.	c. ALTER TABLE TABLE_NAME DROP COLUMN COLUMN_NAME d. ALTER TABLE TABLE_NAME DROP COLUMN_NAME	
26	Suppose a table BOOK contain columns (BNO, BNAME, AUTHOR, PUBLISHER), Raj is assigned a task to see the list of publishers, when he executed the query as: SELECT PUBLISHER FROM BOOK; He noticed that the same publisher name is repeated in query output. What could be possible solution to get publisher name uniquely? Rewrite the following query to fetch unique publisher names from table.	4
Ans.	Solution is to use DISTINCT clause. Correct Query : SELECT DISTINCT PUBLISHER FROM BOOK;	
27	HOTS Consider a database table T containing two columns X and Y each of type integer. After the creation of the table, one record (X=1, Y=1) is inserted in the table. Let MX and MY denote the respective maximum values of X and Y among all records in the table at any point in time. Using MX and MY, new records are inserted in the table 128 times with X and Y values being MX+1, 2*MY+1 respectively. It may be noted that each time after the insertion, values of MX and MY change. What will be the output of the following SQL query after the steps mentioned above are carried out? SELECT Y FROM T WHERE X = 7 A. A . 127 B. 255 C. 129 D. 257	4
Ans.	A. 127	
28	Which SQL function is used to find the highest and lowest value of numeric and date type column?	4
Ans.	MAX() and MIN()	
29	What is the default order of sorting using ORDER BY?	2
Ans.	Ascending	
30	What is the difference between CHAR and VARCHAR?	4

Ans.	CHAR is fixed length data type. For example if the column „name‘ if of CHAR(20) then all name will occupy 20 bytes for each name irrespective of actual data. VARCHAR is variable length data type i.e. it will occupy size according the actual length of data
------	--

INTERFACE PYTHON WITH SQL

Functions to execute SQL queries

CREATE DATABASE

```
import mysql.connector
mydb=mysql.connector.connect(host="localhost",user=
"root",passwd="12345") mycursor=mydb.cursor()
mycursor.execute("CREATE DATABASE SCHOOL")
```

```
    # SHOW DATABASE import mysql.connector
        mydb=mysql.connector.connect(host="localhos
t",user="root",passwd="12345")
        mycursor=mydb.cursor()
mycursor.execute("SHOW DATABASE") for x in
mycursor:
    print (x)
```

CREATE TABLE

```
import mysql.connector
mydb=mysql.connector.connect(host="localhost",user="root",passwd="12345",
database="student")
mycursor=mydb.cursor()
mycursor.execute("CREATE TABLE FEES (ROLLNO INTEGER(3),NAME
VARCHAR(20),AMOUNT INTEGER(10));")
```

SHOW TABLES

```
import mysql.connector
mydb=mysql.connector.connect(host="localhost",user="root",passwd=
"12345",database="student") mycursor=mydb.cursor()
mycursor.execute("SHOW TABLES") for x in
mycursor:
    print(x)
```

DESCRIBE TABLE

```
import mysql.connector
mydb=mysql.connector.connect(host="localhost",user="root",passwd="12345",
database="student")
mycursor=mydb.cursor()
mycursor.execute("DESC STUDENT")
for x in mycursor:
    print(x)
```

SELECT QUERY

```
import mysql.connector
conn=mysql.connector.connect(host="localhost",user="root",passwd="12345",database="stu
dent")
```

```

c=conn.cursor()
c.execute("select * from student") r=c.fetchone()
while r is not None: print(r) r=c.fetchone()

```

#WHERE CLAUSE

```

import mysql.connector
conn=mysql.connector.connect(host="localhost",user="root",passwd="12345",
database="student")
if conn.is_connected()==False:
print("Error connecting to MYSQL DATABASE")
c=conn.cursor()
c.execute("select * from student where marks>90")
r=c.fetchall()
count=c.rowcount
print("total no of rows:",count)
for row in r:
print(row)

```

DYNAMIC INSERTION

```

import mysql.connector
mydb=mysql.connector.connect(host="localhost",user="root",passwd="12345",
database="student") mycursor=mydb.cursor()
r=int(input("enter the rollno")) n=input("enter name") m=int(input("enter marks"))
mycursor.execute("INSERT INTO student(rollno,name,marks) VALUES({},'{}',{})".format(r,n,m))
mydb.commit()
print(mycursor.rowcount,"RECORD INSERTED")

```

UPDATE COMMAND

```

import mysql.connector
mydb=mysql.connector.connect(host="localhost",user="root",passwd="12345",
database="student")
mycursor=mydb.cursor()
mycursor.execute("UPDATE STUDENT SET MARKS=100 WHERE MARKS=40")
mydb.commit()
print(mycursor.rowcount,"RECORD UPDATED")

```

DELETE COMMAND

```

import mysql.connector
mydb=mysql.connector.connect(host="localhost",user="root",passwd="12345",
database="student") mycursor=mydb.cursor()
mycursor.execute("DELETE FROM STUDENT WHERE MARKS<50") mydb.commit()
print(mycursor.rowcount,"RECORD DELETED")

```

DROP COMMAND

```

import mysql.connector
mydb=mysql.connector.connect(host="localhost",user="root",passwd="12345",

```

```

database="student")
mycursor=mydb.cursor()
mycursor.execute("DROP TABLE STUDENT")

```

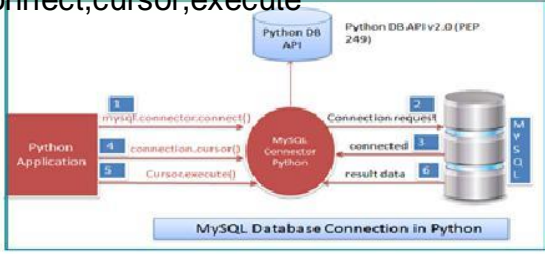
ALTER COMMAND import mysql.connector

```

mydb=mysql.connector.connect(host="localhost",user="root",passwd="12345",
database="student")
mycursor=mydb.cursor()
mycursor.execute("ALTER TABLE STUDENT ADD GRADE CHAR(3)")

```

SN	QUESTIONS/ANSWERS	MARKS ALLOTTED
Q1	What is database.	1
Ans	The database is a collection of organized information that can easily be used, managed, update, and they are classified according to their organizational approach	
Q2	Write command to install connector	1
Ans	pip install mysql-connector-python	
Q3	Write command to import connector.	1
Ans	import mysql.connector	
Q4	What is MySQLdb?	1
Ans	MySQLdb is an open-source freely available relational database management system that uses Structured Query Language.	
Q5	What is resultset?	1
Ans	Result set refers to a logical set of records that are fetched from the database by executing a query.	
Q6	What is database cursor?	1
Ans	Database cursor is a special control structure that facilitates the row by row processing of records in the result set	
Q7	What is database connectivity?	1
Ans	Database connectivity refers to connection and communication between an application and a database system.	
Q8	Which function do use for executing a SQL query?	1
Ans	Cursor. execute(sql query)	
Q9	Which package must be imported to create a database connectivity application?	1
Ans	Mysql.connector	
Q10	Differentiate between fetchone() and fetchall()	1
Ans	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.	
Q11	How we can import MYSQL database in python?	1

Ans	Use the <code>mysql.connector.connect()</code> method of MySQL Connector Python with required parameters to connect MySQL. Use the connection object returned by a <code>connect()</code> method to create a cursor object to perform Database Operations. The <code>cursor.execute()</code> to execute SQL queries from Python.		
Q12	write the steps of connectivity between SQL and Python.		2
Ans	<p>import,connect,cursor,execute</p>  <p>The diagram illustrates the process of connecting a Python application to a MySQL database. It shows three main components: a Python Application (red box), MySQL Connector Python (red circle), and a MySQL Database (cylinder). The process is numbered 1 through 6: 1. Python Application calls <code>mysql.connector.connect()</code> to request a connection. 2. MySQL Connector Python sends a 'Connection request' to the MySQL Database. 3. The MySQL Database responds 'connected' to MySQL Connector Python. 4. Python Application calls <code>connection.cursor()</code> to create a cursor. 5. Python Application calls <code>Cursor.execute()</code> to execute a query. 6. MySQL Connector Python returns 'result data' to the Python Application. The diagram also mentions 'Python DB API v2.0 (PEP 249)' and 'MySQL Database Connection in Python'.</p>		
Q13	What is result set? Explain with example.		2
Ans	Fetching rows or columns from result sets in Python. The fetch functions in the <code>ibm_db</code> API can iterate through the result set. If your result set includes columns that contain large data (such as BLOB or CLOB data), you can retrieve the data on a column-by-column basis to avoid large memory usage.		
Q14	Use of functions in connectivity - INSERT, UPDATE, DELETE, ROLLBACK		2
Ans	INSERT	It is an SQL statement used to create a record into a table.	
	UPDATE	It is used update those available or already existing record(s).	
	DELETE	It is used to delete records from the database.	
	ROLLBACK	It works like "undo", which reverts all the changes that you have made.	
Q15	Write code for database connectivity		2
Ans	<pre># importing the module import mysql.connector # opening a database connection conn = mysql.connector.connect ("localhost", "testprog", "stud", "PYDB") # define a cursor object mycursor = conn.cursor # drop table if exists mycursor.execute("DROP TABLE IF EXISTS STUDENT")</pre>		

	<pre># query sql = "CREATE TABLE STUDENT (NAME CHAR(30) NOT NULL, CLASS CHAR(5), AGE INT, GENDER CHAR(8), MARKS INT)" # execute query cursor.execute(sql) #close object cursor.close() #close connection conn.close()</pre>	
Q16	Which method is used to retrieve all rows and single row?	2
Ans	Fetchall(),fetchone()	
Q17	Write python-mysql connectivity to retrieve all the data of table student.	2
Ans	<pre>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)</pre>	
Q18	Write a query to rename the name of the artist from Towang to Tauwang.	2
Ans	<pre>updateSql = "UPDATE Artists SET NAME= 'Tauwang' WHERE ID = '1' ;" cursor.execute(updateSql)</pre>	
Q19	Write a query to delete an entity from the table Artists whose id is 1	2
Ans	<pre>deleteSql = "DELETE FROM Artists WHERE ID = '1'; " cursor.execute(deleteSql)</pre>	
Q20	Write a small python program to insert a record in the table books with attributes (title ,isbn).	2
Ans	<pre>import mysql.connector as Sqlator con = 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()</pre>	
Q21	Write a small python program to retrieve all record from the table books with attributes (title ,isbn).	2
Ans	<pre>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()</pre>	

CBSE

CLASS 12

SET OF 2 SAMPLE PAPERS

COMPUTER SCIENCE

- BASED ON LATEST PATTERN AS PER CBSE SAMPLE QUESTION PAPER
- INCLUDES CASE BASED QUESTIONS
- ALONG WITH DETAILED SOLUTIONS

CBSE SAMPLE PAPER-01 (2020-21)**Class 12 Computer Science**

Maximum Marks: 70**Time Allowed: 3 hours****General Instructions:**

1. This question paper contains two parts A and B. Each part is compulsory.
2. Both Part A and Part B have choices.
3. Part-A has 2 sections:
 - a. Section – I is short answer questions, to be answered in one word or one line.
 - b. Section – II has two case study questions. Each case study has 4 case-based subparts.
An examinee is to attempt any 4 out of the 5 subparts.
4. Part - B is the Descriptive Paper.
5. Part- B has three sections
 - a. Section-I is short answer questions of 2 marks each in which two questions have internal options.
 - b. Section-II is long answer questions of 3 marks each in which two questions have internal options.
 - c. Section-III is very long answer questions of 5 marks each in which one question has an internal option.
6. All programming questions are to be answered using Python Language only

Part-A**(Section-I)**

Attempt any 15 Questions from Questions 1 to 21.

1. You have the following code segment:

```
String1 = "my"
```

```
String2 = "work"
```

```
print(String1 + String2.upper())
```

What is the output of this code?

- a. My Work
- b. mywork
- c. myWORK

d. MY Work

2. What will the following function return?

```
def addEm(x, y, z):
    print(x + y + z)
```

3. What does the rmdir() method do?

4. What is the output of sys.platform [:2] if the code runs on windows operating system?

a. 'wi'

b. Error

c. 'op'

d. 'sy'

5. To open a file c:\res.txt for reading, we can use (select all correct options):

a. file = open("c: \res.txt", "r")

b. file = open("c:\ \res.txt", "r")

c. file = open(r"c: \res.txt", "r")

d. file = open(file = "c:\res.txt", "r")

e. file = open(file = "c:\ \res.txt", "r")

f. file = open("c:\ \res.txt")

a. d, e, f

b. a, e, f

c. b, d, f

d. b, c, f

6. How can we find the names that are defined inside the current module?

7. What is Connection? What is its role?

8. How is module namespace organized in a Package?

9. What is the output of the following?

```
dry = {0: 'a', 1: 'b', 2: 'c'}
for x, y in dry.items():
    print(x, y, end = '')
```

10. Which variables have global scope?

11. When would you go for linear search in an array and when for binary search?

12. Write a query to display the Sum, Average, Highest and Lowest salary of the employees.

13. What are linear data structures?

14. Consider the table with structure as:

Student(ID, name, dept name, tot_cred) Which attribute will form the primary key?

- a. Dept
- b. ID
- c. Total credits
- d. Name

15. Identify the Domain name and URL from the following:

<http://www.income.in/home.aboutus.htm>

16. SQL applies conditions on the groups through _____ clause after groups have been formed.

- a. Where
- b. Group by
- c. Having
- d. With

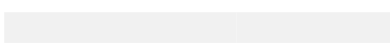
17. What is database connectivity?

18. What is the use of wildcard?

19. What is a repeater?

20. What is MySQLdb?

21. The checksum of 1111 and 1111 is _____.

- a. 0000
 - b. 1111
 - c. 1110
 - d. 0111
- 

Section-II (Case study based Questions)

22. Give output for following SQL queries as per given table(s):

Table: GRADUATE

S.NO.	NAME	STIPEND	SUBJECT	AVERAGE	DIV
1.	KARAN	400	PHYSICS	68	1
2.	DIVAKAR	450	COMPUTER SC	68	1
3.	DIVYA	300	CHEMISTRY	62	2
4.	ARUN	350	PHYSICS	63	1
5.	SABINA	500	MATHEMATICS	70	1
6.	JOHN	400	CHEMISTRY	55	2
7.	ROBERT	250	PHYSICS	64	1
8.	RUBINA	450	MATHEMATICS	68	1
9.	VIKAS	500	COMPUTER SC	62	1
10.	MOHAN	300	MATHEMATICS	57	2

- i. `SELECT MIN (AVERAGE) FROM GRADUATE WHERE SUBJECT = "PHYSICS";`
- ii. `SELECT SUM(STIPEND) FROM GRADUATE WHERE DIV = 2;`
- iii. `SELECT AVG(STIPEND) FROM GRADUATE WHERE AVERAGE >= 65;` iv. `SELECT COUNT (distinct SUBJECT) FROM GRADUATE;`
- v. Write code to rename a table in SQL

23. If the file 'poemBTH.txt' contains the following poem (by Paramhans Yoganand):

God made the Earth; Man-made
 confining countries
 And their fancy-frozen boundaries.
 But with unfound boundless Love
 I behold the borderland of my India
 Expanding into the World.
 Hail, mother of religions, Lotus, scenic beauty and sages!

What outputs will be produced by both the code fragments given below:

- i. What outputs will be produced by the code fragment given below:

```
my_file =open('poemBTH.txt', 'r')
my_file.read()
```
- ii. What outputs will be produced by the code fragment given below:

```
my_file = open('poemBTH.txt', 'r')
```

```
my_file.read(100)
```

iii. A _____ symbol is used to perform reading as well as writing on files in python.

iv. To open file data.txt for reading, open function will be written as f = _____.

v. To open file data.txt for writing, open function will be written as f = _____.

Part – B (Section-I)

24. Write a program that rotates the elements of a list so that the element at the first index moves to the second index, the element in the second index moves to the third index, etc., and the element in the last index moves to the first index.

25. What is Phishing? Explain with examples.

OR

Give the full form for the following:

i. FM

ii. AM

iii. NFS

iv. FTP

26. What do you mean by IP Address? How is it useful in Computer Security?

27. Differentiate between fruitful functions and non-fruitful functions.

OR

Predict the output of the following code: a =

```
10
```

```
y = 5
```

```
def myfunc():
```

```
    y = a
```

```
    a = 2
```

```
    print "y =", y ,",a =",a
```

```
    print "a + y = ", a + y
```

```
    return a + y
```

```
print "y =", y, "a =",a
```

```
print myfunc()
```

```
print "y =",y,"a =",a
```

28. Write a program that reads an integer N from the keyboard computes and displays

the sum of the numbers from N to (2 * N) if N is nonnegative. If N is a negative number, then it's the sum of the numbers from (2 * N) to N. The starting and ending points are included in the sum.

29. Explain the Scope of Variables.
30. Mr. Mittal is using a table with following columns :

Name, Class, Streamed, Stream_name

He needs to display names of students who have not been assigned any stream or have been

assigned stream_name that ends with "computers

He wrote the following command, which did not give the desired result.

SELECT Name, Class FROM Students

WHERE Stream_name = NULL OR Stream_name = "%computers" ;

Help Mr. Mittal to run the query by removing the error and write correct query.

31. What are data types? What are the main objectives of datatypes?
32. What do you understand by Degree and Cardinality of a table?
33. Find the errors in following code and write the correct code.

```
if v < 5:
```

```
    for j in range(v):
```

```
        print "ABC"
```

```
else:
```

```
    print "XYZ"
```

i. Underline the corrections

ii. Write the reason!error next to it in comment form.

Section- II

34. Create file phonebook.dat that stores the details in following format:

Name Phone

Jivin 86666000

Kriti 1010101

Obtain the details from the user.

35. Write a function which takes two string arguments and returns the string comparison result of the two passed strings.

OR

Write a program that reads a date as an integer in the format MMDDYYYY. The program will call a function that prints print out the date in the format <Month Name><day>, <year>.

Sample run :

Enter date: 12252019

December 25, 2019

36. What is a package? How is a package different from the module?
37. From the program code given below, identify the parts mentioned below :

1. def processNumber(x):

2. x = 72

3. return x + 3

4.

5. y = 54

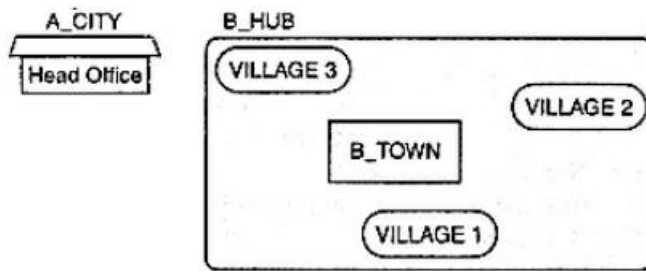
6. res = processNumber(y)

Identify these parts: function header, function call, arguments, parameters, function body, main program.

Section-III

38. Uplifting Skills Hub India is a knowledge and skill community which has an aim to uplift the standard of knowledge and skills in society. It is planning to set up its training centres in multiple towns and villages pan India with its head offices in the nearest cities. They have created a model of their network with a city, a town, and 3 villages as follows.

As a network consultant, you have to suggest the best network related solutions for their issues/ problems raised in (i) to (iv) keeping in mind the distance between various locations and given parameters.



The shortest distance between various location:

VILLAGE 1 to B_TOWN	2 KM
VILLAGE 2 to B_TOWN	1.0 KM
VILLAGE 3 to B_TOWN	1.5 KM
VILLAGE 1 to VILLAGE 2	3.5 KM
VILLAGE 1 to VILLAGE 3	4.5 KM
VILLAGE 2 to VILLAGE 3	2.5 KM
A_CITY Head Office to B_HUB	25 KM

The number of Computers installed at various locations is as follows:

B_TOWN	120
VILLAGE 1	15
VILLAGE 2	10
VILLAGE 3	15
A_CITY Head OFFICE	6

Note:

In Villages, there are community centers, in which one room has been given as a training center for this organization to install computers.

The organization has got financial support from the government and top IT companies.

- i. Suggest the most appropriate location of the SERVER in the B_HUB (out of the 4 locations), to get the best and effective connectivity. Justify your answer.

ii. Suggest the best-wired medium and draw the cable layout (location to location) to efficiently connect various locations within the B_HUB.

iii. Which hardware device will you suggest to connect all the computers within each location of B_HUB?

iv. Which service/protocol will be most helpful to conduct live interactions of Experts from Head Office and people at all locations of B_HUB?

39. Consider the following tables STORE and SUPPLIERS and answer (a) and (b) parts of this question:

Table: STORE

ItemNo	Item	Scode	Qty	Rate	LastBuy
2005	Sharpener Classic	23	60	8	31-Jun-09
2003	Ball Pen 0.25	22	50	25	01-Feb-10
2002	Gel Pen Premium	21	150	12	24-Feb-10
2006	Gel Pen Classic	21	250	20	11-Mar-09
2001	Eraser Small	22	220	6	19-Jan-09
2004	Eraser Big	22	110	8	02-Dec-09
2009	Ball Pen 0.5	21	180	18	03-Nov-09

Table: SUPPLIERS

Scode	Sname
21	Premium Stationers
23	Soft Plastics
22	Tetra Supply

a. Write SQL commands for the following statements:

i. To display details of all the items in the STORE table in ascending order of

LastBuy.

-
- ii. To display ItemNo and Item name of those items from STORE table whose Rate is more than 15 Rupees.
 - iii. To display the details of those items whose supplier code (Scode) is 22 or Quantity in Store (Qty) is more than 110 from the table Store.
 - iv. To display minimum Rate of items for each supplier individually as per Scode from the table STORE.

b. Give the output of the following SQL queries:

- i. `SELECT COUNT(DISTINCT Scode) FROM STORE;`
- ii. `SELECT Rate* Qty FROM STORE WHERE ItemNo = 2004;`
- iii. `SELECT Item, Sname FROM STORE S, Suppliers P WHERE S.Scode= P.Scode AND ItemNo = 2006;`
- iv. `SELECT MAX>LastBuy) FROM STORE;`

40. Write a program to perform insert and delete operations on a Queue containing

Members details as given in the following definition of itemnode :

MemberNo	integer
MemberName	String
Age	integer

OR

Determine the total memory consumption by following the sequence. List1
= [40,45, "Ekta"]

i. excluding memory consumption by actual data

ii. including memory consumption by actual data

o

o

12 Computer Science Sample Paper -01**Class 12 - Computer Science****Solution****Part-A (Section-I) Attempt any 15 Questions**

1. (c) myWORK

Explanation: myWORK, String2.upper() will convert all the characters of a string to Upper Case.

2. **None** object will be returned, (no return statement).
3. The rmdir() method deletes an empty directory, which is passed as an argument in the method. Before removing a directory, all the contents in it should be deleted, i.e. directory should be empty. OSError will be raised if the specified path is not an empty directory.

4. (a) 'wi'

Explanation: windows[:2] = 'wi'

5. (d) b, c, f

Explanation:

In file path, '\r' is a carriage return character, to normalise it we use another / before it or use 'r' prefix before the file path.

We do not need to mention the file keyword to input the file path in open function.

6. The names defined inside a current module can be found by using dir () function.
7. A Connection (represented through a connection object) is the session between the application program and the database. To do anything with the database, one must have a connection object. For connection Python module PyMySQL is installed properly on your machine.
8. Module namespace is organized in a hierarchical structure using dot notation.
9. 0 a 1 b 2 c

10. The variables that are defined outside every function(local scope) in the program have a global scope. They can be accessed in the whole program anywhere (including inside functions).
11. When the array is unsorted liner search is used Binary search is performed in a sorted array.
12. `mysql > SELECT SUM (sal), AVG (sal), MAX (sal), MIN (sal) FROM empl;`
13. These are data structures whose elements form a sequence e.g. Stack, queue and linked lists.
14. (b) ID

Explanation: ID, A primary key is a key that is unique for each record.
15. Domain name: `income.in`

URL: `http://www.income.in/home.aboutus.htm`
16. (c) Having

Explanation: The HAVING clause is closely associated with the GROUP BY clause.
17. A Database connection is a facility that allows client software to talk to database server software, whether on the same machine or not.
18. The wildcard character is used to substitute one or more characters in a string.

They are used with the LIKE operator to search a value similar to a specific pattern in a wildcard operators.

% - represents 0,1 or many characters

— represents a single number or character.

19. A repeater is an electronic device that receives a signal, amplifies it and then retransmits it on the network so that the signal can cover longer distances.

20. MySQLdb is an interface for connecting to a MySQL database server from Python. It implements the Python Database API v2.0 and is built on top of the MySQL API.

21. (a) 0000

Explanation: 0000, 1's complement arithmetic to get the sum.

Section-II (Case study based Questions)

22. i. MIN (AVERAGE)

63

ii. SUM(STIPEND)

1000

iii. AVG(STIPEND)

450

iv. COUNT (distinct SUBJECT)

4

v. EXEC sp_rename 'old_table_name', 'new_table_name'

○

23. i. my_file = open('poemBTH.txt', 'r') will open the given file in read mode

○

and my_file.read() read the entire file in string form.

ii. my_file = open('poemBTH.txt', 'r') will open the given file in read mode

and `my_file.read(100)` read only the first 100 bytes from the file and store the read bytes in form of a string.

iii. +

iv. `open("data.txt","r")` v.
`open("data.txt","w")`

Part – B (Section-I)

24. `lis = eval(input("Enter list:"))`

`last = lis[-1]`

`for i in range(len(lis) -1, 0, -1):`

`lis[i] = lis[i - 1]`

`lis[0] = last`

`print(lis)`

25. Phishing is fraudulent attempts by cybercriminals to obtain private information. For e.g. a message prompt your personal information by pretending that the bank/mail service provider is updating its website. There are various phishing techniques used by attackers:

Embedding a link in an email to redirect to an unsecured website that requests sensitive information

Installing a Trojan via a malicious email attachment

spoofing the sender's address in an email to appear as a reputable source and request sensitive information

Attempting to obtain information over the phone by impersonating a known company vendor.

OR

i. **FM:** Frequency Modulation

ii. **AM:** Amplitude Modulation

iii. **NFS:** Network File Server iv.

FTP: File Transfer Protocol

26. An Internet Protocol (IP) address is a numerical identification and logical address that is assigned to devices connected in a computer network. An IP address is used to uniquely

identify devices on the internet and so one can quickly know the location of the system in the network.

In a network, every machine can be identified by a unique IP address associated with it and thus help in providing network security to every system connected in a network.

27. **Fruitful function** - The functions that return a value i.e., non-void functions are also known as fruitful functions.

Non - fruitful function - The functions that do not return a value, i.e., void functions are also known as non-fruitful functions.

OR

Output of the code is:

Name a not defined.

Since, a was declared after its use in myfunc() function a = 2 is declared, after the statement y = a, resulting in the not defined error.

28. `N = int(input("Enter N: "))`

```
step = N // abs(N)
```

```
sum = 0
```

```
for i in range(N, 2*N + step, step):
```

```
    sum += i
```

```
print(sum)
```

29. All variables in a program may not be accessible at all locations in that program. This depends on the location of the declaration of the variable. The scope of a variable determines the region of the program where you can access a particular identifier. If a variable is accessed outside the scope, Python gives an error of "variable_name is not defined".

There are two basic scopes of variables in Python :

- i. Global variables that are accessible throughout the program anywhere inside all functions have global scope.
- ii. Local variables that are accessible only inside the function where they are declared, have local scope.

30. The given query is erroneous because it involves pattern matching.

The correct operator to be used for pattern matching is **LIKE**. Also, there is NULL comparison and for it also incorrect operator is used. The correct operator for NULL comparison is **IS**. Thus, the correct SQL statement will be :

```
SELECT Name, class FROM students WHERE Stream-name IS NULL OR Stream- name  
LIKE "%computers" ;
```

31. Data types are the classification of data items. Data types represent a kind of value which determines what operations can be performed on that data. Some common data types are Integer, Float, Varchar, Char, String, etc.

Main objectives of datatypes are:

- i. Optimum usage of storage space
- ii. Represent all possible values
- iii. Improve data integrity

32. **Degree.** The number of columns or attributes or fields in a relation/table is called the table's degree.

Cardinality. The number of rows/tuples/record in a relation/table is called the table's cardinality. For example, for a table shown below :

BookNo.	Name	Author	Price
B01	Good learning	Xion Z.	220
B02	Smile easy	T. Singh	350
B03	I to U	S. Sandeep	250

Its degree is 4 (4 columns)

Cardinality is 3 (3 rows)

33. v = 3 # v must be defined before being used

if v < 5:

for j in range(v):

print('ABC") # () missing for print()

else: # wrong indentation; else clause can either be for if # or for for loop

print ("XYZ") # () missing for print()

Section- II

34. This program is used to create a file and store the data in that file:

```

fp1 = open("phonebook.dat", 'w')
fp1.write ("Name")

fp1.write (" ")
fp1.wite ("Phone")
fp1.write ("\n")
while True:

    name = raw_input ("Enter name:") phno
    = raw_input ("Enter phone no:")

fp1.write (name)
fp1.write (" ")

fp1.write ("phno ")
fp1.write ("\n")

ch = raw_Input ("Want to enter more=y/n") if
ch == 'N' OR ch == 'n':

    break

fp1.close()

```

35. def stringCompare(str1, str2):

```

    if str1.length() != str2.length() :

        return False

    else:

        for i in range (str1.length()):

            if str1[i] != str2[i]:

                return False
            else:

                return True

first_string = raw_input("Enter First string:")
second_string = raw_input("Enter Second string:") if
stringCompare(first_string, second_string):

    print ("Given Strings are same.")

else:

```

gs are different.") OR

```

date = input ("Enter date in MMDDYYYY format: ") def
prettyPrint(date):

    months={ 1: 'January', 2: 'February', 3: 'March', 4: 'April', 5: 'May', 6: 'June', 7: 'July', 8:
'August', 9: 'September', 10: 'October', 11: 'November', 12: 'December' }

    month = months[int(date[:2])]
    day = date[2:4]
    year = date[4:]

    prettyDate = month + " " + day + ", " + year
    print(prettyDate)

print(prettyPrint(date))

```

36. A module in python is a .py file that defines one or more function/classes which you intend to reuse in different codes of your program. To reuse the functions of a given module, we simply need to import the module using the import command.

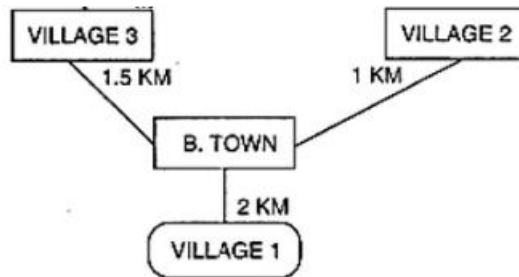
A Python package is a collection of python modules under a common namespace created by placing different modules on a directory along with some special files. This feature comes in handy for organizing modules of one type in one place.

37.

Function header	def processNumber(x) :	in line 1
Function call	processNumber (y)	in line 6
Arguments	y	in line 6
Parameters	x	in line 1
Function body	x = 72	in lines 2 and 3
Main program	y = 54	in lines 5 and 6

38. i. B-TOWN can house the server as it has the maximum no. of computers.

ii. The optical fiber cable is the best for this star topology.



iii. Switch device - connecting all the computers within each location of B_HUB iv.

VoIP- Voice Over Internet Protocol

39. a. i. `SELECT * FROM STORE ORDER BY LastBuy;`

ii. `SELECT ItemNo, Item FROM STORE WHERE Rate > 15;`

iii. `SELECT * FROM STORE WHERE (Scode = 22 OR Qty > 110);`

iv. `SELECT Sname, MIN(Rate) FROM STORE, SUPPLIERS WHERE STORE. Scode =`

`SUPPLIERS.Scode GROUP BY Snam`

b. i. 3

ii. 880

iii.

Item	Sname
Gel Pen Classic	Premium Stationers

iv. 24-Feb-10

40. **Insert, delete and display operation on queue:-**

queue: implemented as a list

front : integer having position of first element in queue rear

: integer having position of last element in queue ""

```
def cls():
```

```
    print("\n" * 100)
```

```
def isEmpty( Qu ) :
```

```
    if Qu == [ ] :
```

```
        return True
```

```
    else :
```

```
        return False
```

```
def Enqueue(Qu, item) :
```

```
    Qu.append(item)
```

```
    if len(Qu) == 1 :
```

```
        front = rear = 0
```

```
    else :
```

```
        rear = len(Qu) - 1
```

```
def Dequeue(Qu) :
```

```
    if isEmpty(Qu) :
```

```
        return "Underflow"
```

```
    else :
```

```
        item = Qu.pop(0)
```

```
        if len(Qu) == 0 : # if it was single-element queue
```

```
            front = rear = None
```

```
    return item
```

```

def Display(Qu) :

    if isEmpty(Qu) :

        print ("Queue Empty!")

    elif len(Qu) == 1:

        print(Qu[0], "<== front, rear")

    else :

        front = 0

        rear = len(Qu) - 1
        print(Qu[front], "<-front")
        for a in range(1, rear ) :
            print(Qu[a]) print(Qu[rear],
                "<-rear")

# __main__

queue = [ ] # initially queue is empty
front = None

while True :

    cls()

    print("QUEUE OPERATIONS BY USING LIST")
    print("1. Insert")

    print("2. Delete")
    print("3. Display ")

    print("4. Exit")

    ch = int(input("Enter your choice (1-5) : "))
    if ch == 1 :

        print ("For the new member, enter details below:")
        memberNo = int( input ("Enter member no :"))

        memberName = input ("Enter member name :) age
        = int(input("Enter memberJs age : "))

        item = [memberNo, memberName, age]

```

```
        Enqueue(queue, item) input("Press
        Enter to continue...")

elif ch == 2 :

    item = Dequeue(queue)

    if item == "Underflow" :

        print ("Underflow! Queue is empty!")

    else :

        print("Deleted item is", item)
        input("Press Enter to continue...")

elif ch == 3 :

    Display(queue)

    input("Press Enter to continue...")

elif ch == 4 :

    break

else :

    print ("Invalid choice!")
    input("Press Enter to continue...")
```

OR

```
List1 = [40,40.5, "Ekta"]
```

i. list overheads = 26

Reference pointer size = 4 bytes (on 32 bit implementation)

Length of the list =3.

Memory consumption for list = 3

List overheads + Reference points size x
length of the list.

= 36 + 4 3 = 48 bytes.

ii. Memory consumption by data.

There are 3 values

1. integer i.e. 40

memory consumption = 12 bytes

2. float i.e. 40.5

memory consumption = 16 bytes

3. string i.e. "Ekta"

iii. memory consumption = overloads + 1 * string length = 21

bytes + 1 * 4

= 21 + 4 = 25 bytes

memory consumption by data = 12 + 16 + 25 = 53 bytes

memory consumption for list l including actual data = 48 + 53 = 101 bytes

CBSE SAMPLE PAPER-02 (2020-21)

Class 12 Computer Science

Maximum Marks: 70

Time Allowed: 3 hours

General Instructions:

1. This question paper contains two parts A and B. Each part is compulsory.
2. Both Part A and Part B have choices.
3. Part-A has 2 sections:
 - a. Section – I is short answer questions, to be answered in one word or one line.
 - b. Section – II has two case study questions. Each case study has 4 case-based subparts.

An examinee is to attempt any 4 out of the 5 subparts.

4. Part - B is the Descriptive Paper.
5. Part- B has three sections
 - a. Section-I is short answer questions of 2 marks each in which two questions have internal options.
 - b. Section-II is long answer questions of 3 marks each in which two questions have internal options.
 - c. Section-III is very long answer questions of 5 marks each in which one question has an internal option.
6. All programming questions are to be answered using Python Language only

Part-A (Section-I) Attempt any 15 Questions

1. Which of the following is incorrect?
 - a. `sys.platform`
 - b. `sys.readline`
 - c. `sys.path`
 - d. `sys.argv`
2. Why do we define a function?
3. How will you open a new binary file `btext.txt` in write and read mode?
4. Which of the following is an invalid statement?
 - a. `a, b, c = 1000, 2000, 3000`
 - b. `a = b = c = 1,000,000`
 - c. `a b c = 1000 2000 3000`
 - d. `abc = 1,000,000`
5. To open a file `c:\ss.txt` for appending data, we use
 - a. `file = open("c:\ \ss.txt", "a")`
 - b. `file = open("c:\ \ss.txt", "rw")`
 - c. `file = open(r"c: \ss.txt", "a")`
 - d. `file = open(file = "c:\ss.txt", "w")`
 - e. `file = open(file = "c:\ \ss.txt", "w")`
 - f. `file = open("c:\ res.txt")`
 - a. c, d
 - b. b, d
 - c. a, c
 - d. a, d
6. What is the Python search path?
7. What will the following query do?

```
import mysql.connector
```

```
db = mysql.connector.connect(.. )
```

```
cursor = db.cursor( )
```

```
db.execute("SELECT * FROM staff WHERE person_id in {}".format((1,3,4)))
```

```
db.commit()
```

```
db.close()
```

8. What will be the result of following statement with following hierarchical structure of

```
package Pkt1
```

```
  i. _int_.py
```

```
  ii. module1
```

```
  iii. module2
```

```
  iv. module3
```

```
module1 has functions - hello (), printme ()
```

```
module2 has functions - countme(), printit ()
```

```
module3 has functions - this(), that ()
```

```
import Pkt1
```

```
module1.hello ()
```

give reasons for your answers.

9. What is the difference between a list and a tuple?
10. What is an argument?
11. Can you suggest a real-life application for input/output restricted queues?
12. What do you understand by the terms Candidate Key and Cardinality of relation in

the relational database

13. What is overflow situation?
14. A(n) _____ in a table represents a logical relationship among a set of values.
- Entry
 - Key
 - Attribute
 - Tuple
15. Expand the following:
- VoIP
 - SMTP
16. Which is the subset of SQL commands used to manipulate database structures, including tables?
- None of these
 - Both Data Definition Language (DDL) and Data Manipulation Language (DML)

- c. Data Definition Language (DDL)
- d. Data Manipulation Language (DML)

17. Differentiate between fetchone() and fetchall() methods.
18. What do you understand by Primary Key? Give a suitable example of Primary Key from a table containing some meaningful data.
19. What is the job of a switch?
20. Write a checklist before connecting to a database?
21. Find ODD parity bit for 11100011
 - a. 1
 - b. 2
 - c. none of these
 - d. 0

Section-II (Case study based Questions)

22. Consider the following tables GAMES and PLAYER and answer (b) and (c) parts of this question:

Table: GAMES

GCode	Game Name	Type	Number	Prize Money	Schedule Date
101	Carom Board	Indoor	2	5000	23-Jan-2004
102	Badminton	Outdoor	2	12000	12-Dec-2003
103	Table Tennis	Indoor	4	8000	14-Feb-2004
105	Chess	Indoor	2	9000	01-Jan-2004
108	Lawn Tennis	Outdoor	4	25000	19-Mar-2004

Table: PLAYER

PCode	Name	GCode
1	Nabi Ahmad	101
2	Ravi Sahai	108
3	Jatin	101
4	Nazneen	103

- a. What do you understand by primary key and candidate keys?
- b. Write the SQL command for the following statement:
To display the name of all GAMES with their GCodes.
- c. Write the SQL command for the following statement:

To display details of those GAMES which are having PrizeMoney more than 7000.

d. Write the SQL command for the following statement:

To display the content of the GAMES table in ascending order of Schedule Date.

e. Write the SQL command for the following statement:

To display sum of PrizeMoney for each type of GAMES.

23. A text file "Quotes.Txt" has the following data written in it :

Living a life you can be proud of Doing you

Spending your time with people and activities that are important to you

Standing up for things that are right even when it's hard

Becoming the best version of you

- i. Write a user-defined function to display the total number of words present in the file.
- ii. Which of the following function flushes the files implicitly?
 - a. flush()
 - b. close()
 - c. open()
 - d. fflush()
- iii. A _____ function reads first 15 characters of file.
- iv. You can create a file using _____ function in python.
- v. A _____ function requires a sequence of lines, lists, tuples etc. to write data into file.

Part – B (Section-I)

24. 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)
```

25. Write the expanded names for the following abbreviated terms used in Networking and Communications

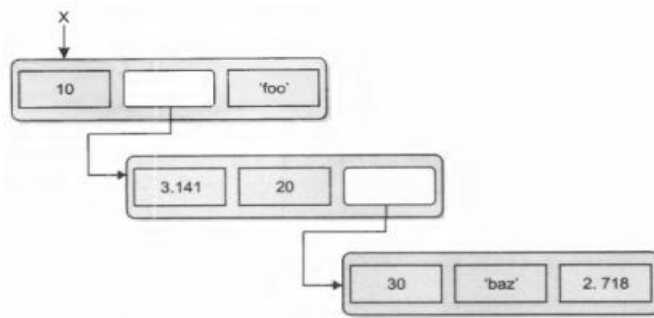
- i. GPRS
- ii. WiFi
- iii. POP
- iv. SMTP

OR

What is E-mail? What are its advantages?

26. What do you mean by IP Address? How is it useful in Computer Security?
27. How can we import a module in Python?

OR



Find the error(s) in the following code and correct them: def describe intelligent life form():

```
height = raw_input ("Enter the height")
rawinput ("Is it correct?")
```

```
weight = raw_input ("Enter the weight")
```

```
favourite-game = raw_input ("Enter favorite game")
print "your height", height, 'and weight', weight
print "and your favourite game is", favouritism, '.'
```

28. Consider the following nested list definition and then answer the questions based on this

x = [10, [3.141, 20, [30, 'baz', 2.718]], 'foo'] A

schematic for this list is shown below:

i. What is the expression that returns the 'z' in 'baz'?

ii. What expression returns the list ['baz', 2.718]

29. Find and write the output of the following python code:

```
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)

30. In a table **Apply**, there is a column namely **Experience** that can store only one of these values: 'Fresher', 'Private-sector-experience', 'Public-sector-experience', 'Govt.- sector experience'. You want to sort the data of table based on column **experience** as per this order: 'Govt-sector-experience', 'Public-sector-experience', 'Private-sector- experience', 'Fresher'. Write an SQL query to achieve this.

31. Consider a table structure as follows:

Employee

Emp_id Empname

Dept

Age.

Write Python code to create the above table and then create an index and Emp_id.

32. What are different types of SQL functions?

33. Predict the output of the following code snippets?

i. arr = [1, 2, 3, 4, 5, 6]

for i in range(1, 6):

arr[i - 1] = arr[i]

for i in range(0, 6):

print(arr[i], end = " ")

ii. Numbers = [9, 18, 27, 36]

```

for Num in Numbers :

    for N in range(1, Num%8) :

        print(N, "#", end = " ")

    print( )

```

Section- II

34. Write a function CountYouMe() in Python which reads the contents of a text file

Notes.txt and counts the words You and Me (not case sensitive).

35. Write a function called removeFirst that accepts a list as a parameter. It should remove the value at index 0 from the list.

Note that it should not return anything (returns None). Note that this function must actually modify the list passed in, and not just create a second list when the first item is removed.

You may assume the list you are given will have at least one element.

OR

Write the term suitable for following descriptions:

- i. A name inside the parentheses of a function header that can receive value.
 - ii. An argument passed to a specific parameter using the parameter name.
 - iii. A value passed to a function parameter.
 - iv. A value assigned to a parameter name in the function header.
 - v. A value assigned to a parameter name in the function call.
 - vi. A name defined outside all function definitions.
 - vii. A variable created inside a function body.
36. Why do we need packages in Python?
37. What is the utility of:
- i. default arguments
 - ii. keyword arguments

Section-III

38. Discuss how IPv4 is different from IPv6.

39. Consider the following table STORE. Write SQL commands for the following statements.

Table: **STORE**

ItemNo	Item	Scode	Qty	Rate	LastBuy
2005	Sharpener	23	60	8	31-Jun-09
2003	Ball Pen 0.25	22	50	25	01-Feb-10
2002	Gel Pen Premium	21	150	12	24-Feb-10
2006	Gel Pen Classic	21	250	20	11-Mar-09
2001	Eraser Small	22	220	6	19-Jan-09
2004	Eraser Big	22	110	8	02-Dec-09
2009	Ball Pen 0.5	21	180	18	03-Nov-09

i. To display details of all the items in the Store table in ascending order of LastBuy.

ii. To display ItemNo and Item name of those items from Store table whose Rate is more than 15 Rupees.

iii. To display the details of those items whose Suppliers code (Scode) is 22 or Quantity in Store (Qty) is more than 110 from the table Store.

iv. To display the Minimum Rate of items for each Supplier individually as per Scode from the table store.

40. Write a program that depends upon the user's choice, either pushes or pops an element in a stack.

OR

Convert the expression (TRUE and FALSE) or not (FALSE or TRUE) to postfix expression. Show the contents of the stack at every step.

12 Computer Science Sample Paper -02

Class 12 - Computer Science

Solution

Part-A (Section-I) Attempt any 15 Questions

1. (b) `sys.readline`

Explanation: The correct format to use this is **`sys.stdin.readline`**.

2. We define a function in the program for decomposing complex problems into simpler pieces by creating functions and for reducing duplication of code by calling the function for specific task multiple times.
3. `file_handle = open("btext.txt", wb+)`

Note : `wb+` mode open binary files in read and write mode.

4. (c) `a b c = 1000 2000 3000`

Explanation: `a b c = 1000 2000 3000` not work

5. (c) a, c

Explanation: (a) and (c) statements have the correct syntax to open the file in append mode.

6. The Python search path is a list of directories that the Python searches for any Python package or module to be imported.

7. It will extract rows from staff table where `person_id` is 1 or 3 or 4.

8. This will given an error as importing a packet does not place any of modules into local namespace.

9. Lists are mutable sequence types while tuples are immutable sequence types of Python.

10. An argument is a value sent onto the function from the function call statement.

e.g. `sum(4,3)` have 4 and 3 as arguments which are passed to `sum()` function.

11. To store a web browser's history, the deque is used. Recently visited URLs are added

to the front of the deque, and the URL at the back of the deque is removed after some specified number of insertions at the front.

12. **Candidate key:** It is a set of attributes that uniquely identify tuples in a table.

Candidate Key is a super key with no repeated attributes.

Cardinality of a relation represents the number of rows in the relation.

13. Overflow refers to when one tries to push an item in stack that is full.
14. (d) Tuple

Explanation: Tuple is one entry of the relation with several attributes which are fields.

15. i. Voice Over Internet Protocol (VoIP), is a technology that allows you to make voice calls over a broadband Internet connection.
ii. Simple Mail Transfer Protocol is the protocol used for sending e-mail over the Internet.
16. (c) Data Definition Language (DDL)

Explanation: Data Definition Language (DDL) is used to manage the table and index structure. CREATE, ALTER, RENAME, DROP and TRUNCATE statements are the names of few data definition elements.

17.

fetchone()	fetchall()
The fetchone() method is used to fetch only one row from the table. The fetchone() method returns the next row of the result-set.	fetchall() is used to fetch multiple values. It fetches all the rows in a resultset. If some rows have already been executed from the result set, then it retrieves the remaining rows from the result set.

18. **Primary Key:** A column or set of columns that uniquely identifies a row within a table is called a primary key.

For example, in the following table **Student**, the column **Roll no.** can uniquely identify each row in the table, hence Roll no. is the primary key of the following table.

Roll no.	Name	Marks	Grade
1	-	-	-
2	-	-	-
3	-	-	-
4	-	-	-

19. Switch is responsible for filtering i.e., transforming data in a specific way and for

forwarding packets of the message being transmitted, between LAN segments. A switch does not broadcast the messages, rather it unicasts the message to its intended destination.

20. Before connecting to a MySQL database make sure

i. You have created a database

ii. You have created a table

iii. This table has fields

iv. Python module MySQLdb is installed properly on your machine.

21. (d) 0

Parity refers to the number of bits set to 1 in the data item

Even parity - an even number of bits are 1

Odd parity - an odd number of bits are 1

A parity bit is an extra bit transmitted with a data item, chose to give the resulting bits even or odd parity

Odd parity - data: 11100011, parity bit 0

Section-II (Case study based Questions)

22. a. Primary Key is a unique and non-null key, which is used to identify a tuple uniquely. If a table has more than one such attributes which identify a tuple uniquely than all such attributes are known as candidate keys.

b. `SELECT GameName, GCode FROM GAMES;`

c. `SELECT * FROM Games WHERE PrizeMoney > 7000;`

d. `SELECT * FROM Games ORDER BY ScheduleDate;`

e. `SELECT SUM(Prizemoney) FROM Games GROUP BY Type;`

23. (i) User define function to display total number of words in a file:

```
def countwords():
```

```
    s=open ("Quotes.txt", 'r')
```

```
    f = s, read()
```

```
    z = f. split()
```

```
    count=0
```

```
    for i in z:
```

```
        count=count +1
```

```
    print("Total number of words", count)
```

(ii) b. `close()`

(iii) `read(15)`

(iv) `open()`

(v) `writelines()`

Part – B (Section-I)

24. `To = 30` # variable name should be on LHS

```
for K in range(0, To): # : was missing
```

```
    if k%4 == 0: # IF should be in lowercase; i.e; if
```

```
        print (K * 4)
```

```
    else: # else should be in lower case
```

```
        print (K + 3)
```

25. i. GPRS: General Packet Radio Service

ii. WiFi: Wireless fidelity

iii. POP: Post Office Protocol

iv. SMTP: Simple Mail Transfer Protocol OR

E-mail (Electronic mail) is sending and receiving messages by a computer. Electronic mail (email or e-mail) is a method of exchanging messages ("mail") between people using electronic devices. The major advantages of E-mail are:

i. Easy record maintenance

ii. Waste reduction

iii. Low Cost

iv. Fast delivery

26. An Internet Protocol (IP) address is a numerical identification and logical address that is assigned to devices connected in a computer network. An IP address is used to uniquely identify devices on the internet and so one can quickly know the location of the system in the network.

In a network, every machine can be identified by a unique IP address associated with it and thus help in providing network security to every system connected in a network.

27. i. **using import** statement

Syntax: `import <modulename1>[,<modulename2>,...<modulename3>]`

Example:

- `import math, c math`

```
import random, math, numpy
```

ii. **using from** statement

- **Syntax:** `from <modulename> import <function1> [,<function2>,... <function>]`

Example:

```
from math import sqrt, pow
```

```
from random import random, randint, randrange
```

OR

The correct syntax for the code is: def

```
describe_intelligent_life_form():
```

```
    height = raw_input ("Enter the height")
```

```
    ques = raw_input ("Is it correct(y/n)?")
```

```
    weight = raw_input ("Enter the weight")
```

```
    favourite_game = raw_input ("Enter favorite game")
```

```
    print ("your height", height, 'and weight', weight)
```

```
    print ("and your favourite game is", favourite_game, '.')
```

Errors : Function name should not have spaces. We can use underscore in place of spaces.

No variable is defined to obtain value being input, we can use a variable to take input. Lines 4 and 6 are badly indented; being part of same function, those should be at the same indentation level as that of lines 2, 3, 5 and 7.

And also, variable favorites-game is an invalid identifier as it contains a hyphen, but it should have been an underscore.

28. i. `x[1][2][1][2]`

ii. `x[1][2][1:]`

29. `250 # 150`

`250 # 100`

`130 # 100`

The `R = Change(R,S)` prints the value of R and S from the function and updates variable R. Then, next `print(R, "#",S)` statement prints the updated value of R and value of S. Then, `S = Change(S)` prints the value of S and `Q(=30)` in the function.

30. Statement:-

```
SELECT * FROM Apply ORDER BY FIELD (Experience, 'Govt-sector-experience', 'Public- sector-
experience', 'Private-sector-experience', 'Fresher') ;
```

31. `import MySQLdb`

```
db = MySQLdb.connect("localhost", "HRMan", "HRman@pwd", "compvtLtd")
```

```
cursor= db.cursor()
```

```
cursor.execute ("Drop Table IF Exists Employee")
```

```
sql="""Create Table Employee(Emp_id INT NOT NULL , Emp_name char(50) NOT NULL , Dept'
char(20)
```

```
NOT NULL , Age INT NOT NULL )"""
```

```
cursor.execute(sql)
```

```
cursor.execute("""create index eid on user,(Emp_Id)""")
```

```
cursor.commit()
```

```
cursor.close ()
```

```
db.close()
```


32. There are two types of SQL functions;
- i. Single Row (or Scalar) functions, work with a single row at a time. A single row function returns a result for every row of a queried table.
 - ii. Multiple Row (or Group or Aggregate) functions, work with data of multiple rows at a time and return aggregated value.
33. Outputs of the above given code segments are:

i. 2 3 4 5 6 6

ii. 1 #

1 # 2 #

1 # 2 # 3 #

Section- II

34. CountYouMe function will count the number of occurrences of word You and Me in the file given.

```
def CountYouMe():

    wordlist = [line.strip() for line in open('Notes.txt')] #
    Searching for a word in a file

    count =0

    for word in wordlist:
        words = word.split(" ")
        for word in words:

            # Remove all leading and trailing white spaces
            word =word.strip().lower()

            if word == 'you' or word=='me'():

                count = count + 1

    if count == 0:

        print ("Not found in file")
    else:
```

```
print ("count=", count)
```

Example: If the file contains

You are my best friend

You and me make a good team.

Output would be: count=3

35. `def removeFirst (input_list):`

```
    """This function will remove first item of the list"""
```

```
    input_list.pop(0)
```

```
    #pop removes and returns item of list
```

```
    return
```

OR

i. Parameter

ii. Named argument

iii. Argument

iv. Default value

v. Named/keyword arguments

vi. Global Variable

vii. Local Variable

36. As the application program grows larger in size with a lot of modules, we place similar modules in one package and different modules in different packages. This makes a project easy to manage and conceptually clear.

37. i. The default parameters are parameters with a default value set to them. This default value is automatically considered as the passed value WHEN no value is provided for that parameter in the function call statement.

Thus default arguments are useful when we want to skip an argument in a function call statement and use the default value for it instead.

ii. The keyword arguments give complete control and flexibility over the values sent as arguments for the corresponding parameters. Irrespective of the placement and order of arguments, keyword arguments are correctly matched. A keyword argument is where you provide a name to the variable as you pass it into the function.

Section-III

38. Internet Protocol (IP) is a set of technical rules that define how computers

communicate over a network. There are currently two versions: IP version 4 (IPv4) and IP version 6 (IPv6).

IPv4 was the first version of Internet Protocol to be widely used and still accounts for most of today's Internet traffic. There are just over 4 billion IPv4 addresses. While that is a lot of IP addresses, it is not enough to last forever. IPv4 and IPv6 are internet protocol version 4 and internet protocol version 6, IP version 6 is the new version of Internet Protocol, which is way better than IP version 4 in terms of complexity and efficiency.

IPv6 is a newer numbering system to replace IPv4. It was deployed in 1999 and provides far more IP addresses, which should meet the need well into the future.

The major difference between IPv4 and IPv6 is the number of IP addresses. Although there are slightly more than 4 billion IPv4 addresses, there are more than 16 billion- billion IPv6 addresses.

	Internet Protocol version 4	Internet Protocol version 6
Address size	32-bit number	128-bit number
Address format	Dotted decimal notation :	Hexadecimal notation :
Number of addresses	2^{32}	2^{128}

39. i. SELECT *
- FROMSTORE ORDER
- By LastBuy ;
- ii. SELECT ItemNo, Item
- FROMSTORE
- WHERE Rate >15 ;
- iii. SELECT *
- FROM STORE
- WHERE Scode = 22 OR Qty > 110 ;
- iv. SELECT Scode, Min(Rate)
- FROMSTORE
- GROUP By Scode;

40. push and pop operation into the stack:-

```
MAX_SIZE = 1000

stack = [0 for i in range(MAX_SIZE)] -
top= 0

def push():

    global stack, top

    x = int( input ("Enter element to push into stack: " )) if
top >= MAX_SIZE:

        print("Cannot push. Stack is full. Overflow!")

    else:

        stack[top] = x
        top += 1

def pop():

    global stack, top if
top == 0:

        print("Cannot pop. Stack is empty. Underflow!")
    else:

        top -= 1

def printStack():

    print(stack[:top])

# __main__
while True:

    print("Please choose operation")
    print("1. Push")

    print("2. Pop")
    print("3. Print")
    print("4. Exit")

    choice = int(input("Please enter 1/2/3 : " )) if
choice == 4:

        break
```

```
elif choice == 3:  
    printStack()
```

```
elif choice == 2:
```

```
    pop()
```

```
elif choice == 1:
```

```
    push()
```

```
else:
```

```
    print("Please give a correct input")
```

OR

[(TRUE and FALSE) or not (FALSE or TRUE)]

Adding] to the end of the expression and inserting [to the beginning of the stack.

Scanning from Left to Right

S. No	Symbol	Stack	Postfix Expression Y
0		[
1	([(
2	TRUE		TRUE
3	and	[(and	TRUE
4	FALSE		TRUE FALSE
5	)	[	TRUE FALSE and
6	or	[or	TRUE FALSE and
7	not	[or not	TRUE FALSE and
8	(	[ or not (	TRUE FALSE and
9	FALSE		TRUE FALSE and FALSE
10	or	[or not (or	TRUE FALSE and FALSE
11	TRUE		TRUE FALSE and FALSE TRUE
12	)	[ or not	TRUE FALSE and FALSE TRUE or
13	]	End of Expression	TRUE FALSE and FALSE TRUE or not or

*****ALL THE BEST*****