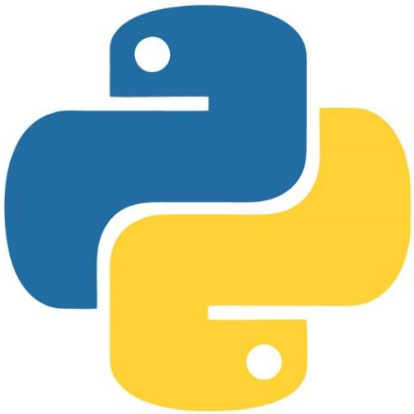
cs2study

Exam Revision Material



PYTHON

CLASS XII

Includes

- 1 Mark Questions
- Exam Based Questions
- Difference on Important Concepts

Python is a case sensitive language- it means python considers lowercase and uppercase differently. e.g. Num=3 , num=24
python will consider both the variables differently though their pronunciation is same.

Q What are the different types of Tokens?
Ans

1. Keyword(system defined names)
2. Identifier(user defined names)
3. Literals
4. Operators
5. Punctuators

Q Explain Keyword .
Ans Keywords are the reserve words/pre-defined words/special words of python

False	**True**	**None**	**def**	**if**
lambda	**class**	**yield**	**continue**	**else**
assert	**or**	**while**	**break**	**elif**
del	**from**	**is**	**not**	**pass**
For	**global**	**finally**	**import**	**as**
in	**nonlocal**	**return**	**with**	**and**
int	**except**	**raise**	**print**	**csv**
pickle	**reader**	**writer**	**dump**	**load**
sys	**connector**	**cursor**	**execute**	**fetch**

Q What are identifiers?
Ans
Identifiers are the name given to the different programming elements like variables, functions, lists, dictionaries etc.

Q What are the naming rules of Identifiers?
Ans

1. Spaces are not allowed
2. Special symbols like $%^&#@! Not allowed
3. Must made up of only letters,numbers and underscore(_)
4. Can't begin with a number
5. Keywords are not allowed
6. Can start with underscore(_)

Keyword	**Identifier**
These are system defined words	These are user defined words
These can have only letters	these can have letters, digits and a symbols underscore.
These are reserved	These are not reserved
For example : if, else, elif etc.	For example : chess, _ch, etc.

Q Explain the concept of variable in Python.
Ans
Variable is a name given to a memory location.
A variable can consider as a container which holds value.
Python is a type infer language that means you don't need to specify the datatype of variable.
Variable name= Identifier name

VARIOUS WAY TO DECLARE A VARIABLE:

1. **Assigning single Value to Variable** variable_name= value	2. ASSIGNING **DIFFERENT VALUES** TO MULTIPLE VARIABLES variable_name1, variable_name2= value_of_variable1, value_of_variable2
name = 'python' **num** = 2 roll_no=1	>>>a,b=3,4
3. ASSIGNING **SAME VALUES** TO MULTIPLE VARIABLES variable_name1, variable_name2= value_of_variable1, value_of_variable2 e.g. a,b=0,0 or a=b=0	

Q Explain the different types of Literals in Detail.

Ans

1. Numeric Literals- **are numeric values like integer floating point number or a complex number**
   (a) Integer literals- whole numbers. (e.g. 123,-1234)
   (b) Floating literal – integer with decimal (e.g.-13.0,3.5)
   (c) Complex (e.g. 2+3j here 2 and 3 are real and j are imaginary)
2. String literal
3. Special literal –none (empty legal value)- **is to indicate absence of value**
4. Boolean literal- **to represent one of the two Boolean Values i.e. True or False**

Question: What are literals in Python ? How many types of literals are allowed in Python ?
Answer:
Literals mean constants i.e. the data items that never change value during a program run. Python allow five types of literals :

String literals	Numeric literals,	Boolean literals,	Special literal (None),	Literal collections like tuples, lists

Question : How many ways are there in Python to represent an integer literal ?
Answer: 3 types of integer literals :

Decimal (base 10) integer literals	**Octal (base 8) integer literals**	**Hexadecimal (base 16) integer literals**
Numbers between 0-9	Begin with 0o	Begin with Ox

Q What are operators?
Ans

Operators are the symbols or words that perform some kind of operation on given values (operands) in an expression and returns the result.

Types of operators are:

arithmetic	**+,-,/,*,%,**,//**
bitwise	**&, ^, |**
Identity	**is, is not** **(these are used to compare the memory locations of two objects). These can be used in place of == (is) and != (is not)**
Relational (comparison)	**>,<,>=,<=,==,!=** **(these operators are used to compare the values)**
logical	**and, or, not** **(these are used to perform logical operations on the given two variables or values.)**
shift	**<<, >>**
Assignment	**=** **(these are used to assign values)**
Membership	**in, not in**

	(these operators used to validate whether a value is found within a sequence such as such as strings, lists, or tuples.)
arithmetic-assignment	+=, -=, //=, **=, *=, /=

Difference between Assignment and Arithmetic Assignment Operator

Arithmetic Assignment Operator	**Assignment**
Used to assign values to the variables after performing arithmetic operations.	**Used to assign values to the variables.**
respresented by (+=,-=,*=,/=,%=,//=)	**Represented by (=)**

Practice questions on concepts keywords,identifiers and operators

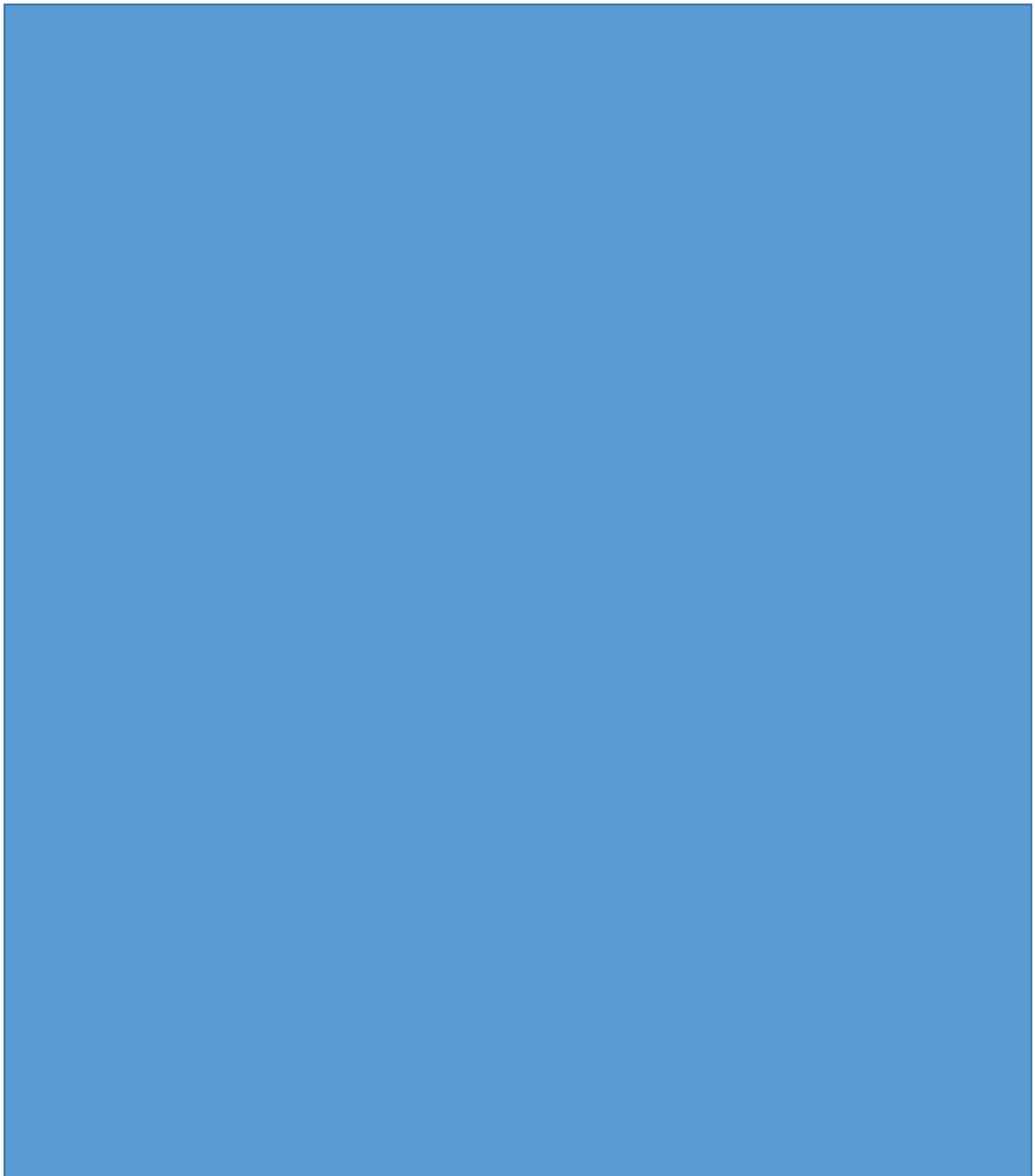
Write the full form of IDLE Ans integrated development learning environment	Which of the following is not an assignment operator? i.) **= ii.) /= iii.) == iv.)%= Ans (iii) ==
Write the type of tokens from the following. i. _Var ii. In **Ans (i) identifier (ii) operator-membership operator**	Find the correct identifiers out of the following, which can be used for naming Variable, Constants or Functions in a python program : For, while, INT, NeW, del, 1stName, Add+Subtract, name1 Ans For, INT, NeW, name1
Find the correct identifiers out of the following, which can be used for naming variable, constants or functions in a python program : While, for, Float, int, 2ndName, A%B, Amount2, _Counter Ans While, Float, _Counter, Amount2	Which of the following is valid logical operator (i) && (ii) > (iii) and (iv) == Ans (iii) and
Write the data type of following literals: (i) 123 (ii) True Ans (i) number-integer (ii) Boolean	Which of the following is not a valid identifier name in Python? Justify reason for it not being a valid name. a) 5Total b) _Radius c) pi d)While Ans (a) 5total-it starts with number (c) pi-is a keyword
Which of the following are valid operator in Python: (i) */ (ii) is (iii) ^ (iv) like Ans (ii) is-identity operator	Which of the following are Keywords in Python ? (i) break (ii) check (iii) range (iv) while Ans (i) break (iii) range (iv) while

Find the invalid identifier from the following
a) def b) For c)_bonus d)First_Name
Ans (a) def
	Which of the following is valid arithmetic operator in Python:
	(i) // (ii)? (iii) < (iv) and
	Ans (i) //

Find the invalid identifier from the following a) Subtotal b) assert c) temp_calc d) Name2 Ans (b) assert- it is a keyword	Which operator is used for replication? a) + b) % c) * d) // Ans (c) *
What is the value of the expression 4+4.00, 2**4.0 Ans (8.0, 16.0)	Identify the invalid keyword in Python from the following: (a) True (b) None (c) Import (d) return Ans (c) Import

Find the operator which cannot be used with a string in Python from the following:
(a) + (b) in (c) * (d) //
Ans (d) //
	Name the mutable data types in Python.
	Ans : list,dictionary

Find the valid identifier from the following a) My-Name b) True c) 2ndName d) S_name Ans (d) S_name	Identify the valid logical operator in Python from the following. a) ? b) < c) ** d) and Ans (d) and
Which one is valid relational operator in Python	Which of the following can be used as valid variable identifiers in Python?



a). / b). = c). = = d). and Ans (c) ==	a) 4th Sum b) Total c) Number# d) _Data Ans (b) Total (d) _Data
Identify the mutable data types? (a) List (b) Tuple (c) Dictionary (d) String Ans (a) List (c) Dictionary	Which of the following are valid operators in Python: (a) ** (b) between (c) like (d) || Ans (a) **
Find the invalid identifier from the following a) yourName b) _false c) 2My_Name d) My_Name Ans (c) 2My_Name	Which of the following is a valid assignment operator in Python ? a) ? b) < c) *= d) and e) // Ans (c) *=
Which of the following is not a valid identifier in Python? a) KV2 b) _main c) Hello_Dear1 d) 7 Sisters Ans (d) 7 Sisters	Which of the following is valid relational operator in Python: (a)// (b)? (c) < (d) and Ans (c) <
Find the valid identifier from the following a) False b) Ist&2nd c) 2ndName d) My_Name Ans (d) My_Name	Identify the invalid logical operator in Python from the following. a) and b) or c) not d) Boolean Ans (d) Boolean
Which of the following variable names are invalid ? Justify. (a) try (b) 123 Hello (c) sum (d) abc@123 **Answer:** **(a) try :** is a keyword can't be used as an identifier. **(b) 123 Hello :** Variable names can't start with a digit. **(c) abc@123 :** Special characters aren't allowed in variable names.	

Python Operator Precedence – Python follows PEMDAS

Parentheses|Exponentiation|Multiplication|Division|Addition|Subtraction

Operators	**Meaning**
()	Parentheses
****	Exponent
***,/, //, %**	Multiplication, Division, Floor, Division, Modulus
+,-	Addition, Subtraction
==,!=,>,>=,<,<=, is, is not, in, not in	Relational,Identity,Membership Operators
Not	Logical NOT
And	Logical AND
Or	Logical OR

Operator evaluations - questions

Evaluate the following expressions:	
a) 8/4+4**2//5%2-8	Ans -5.0
b) 10 >= 5 and 7 < 12 or not 13 == 3	Ans True
c) 6 * 3 + 4**2 // 5 – 8	Ans 13
d) 10 > 5 and 7 > 12 or not 18 > 3	Ans False
e) 18 % 4 ** 3 // 7 + 9	Ans 11
f) 2 > 5 or 5 == 5 and not 12 <= 9	Ans True
g) 6 * 3 + 4**2 // 5 – 8	Ans 13
h) 10 > 5 and 7 > 12 or not 18 > 3	Ans False
i) 51+4-3**3//19-3	Ans 51
j) 1718 and not 19==0	Ans True
k) 8 * 3 + 2**3 // 9 – 4	Ans 25
l) 12 > 15 and 8 > 12 or not 19 > 4	Ans False
m) not(20>6) or (19>7)and(20==20)	Ans True
n) 17%20	Ans 17
o) 2 ** 3 ** 2	Ans 512
p) 7 // 5 + 8 * 2 / 4 – 3	Ans 2.0
If given A=2,B=1,C=3, What will be the output of following expressions:	
(i) print((A>B) and (B>C) or(C>A))	Ans True
(ii) print(A**B**C)	Ans 2
Write the output of the following python expression:	
(a) print((4>5 and (2!=1) or (4<9))	Ans True
(b) print(2 + 3*4//2 - 4)	Ans 4
(c) print(10%3 – 10//3)	Ans -2

Question : How many types of strings are supported in Python ?

Answer:

Single line strings :	**Multiple strings :**
Strings that are terminated in single line.	Strings storing multiple lines of text.
For example : str = ‘Oswal Books’	For example : str = ‘Owal \ Books’ or str = ” ” ” Oswal Books ” ” “

Question : What is “None” literal in Python ?

Answer:

Python has one special literal called ‘None’. The ‘None’ literal is used to indicate something that has not yet been created. It is also used to indicate the end of lists in Python.

Q What are Escape Sequences or Backslash Character Constants?

Ans1. These are some non-printable or non-graphic characters which are mainly for formatting(display purpose) and used only with print().

2. All escape sequences occupies **one byte** in computer memory .

3. An escape sequence **always starts with backslash** followed by one or more special characters.

4. **Escape Sequences** must be enclosed in single quotes or in double quotes.

few Escape sequences are:

Escape Sequence	**Description**
\\	Backslash (\)
\'	Single quote (')

\"	Double quote (")
\a	ASCII Bell (BEL)
\b	ASCII Backspace (BS)
\f	ASCII Formfeed (FF)
\n	New line or ASCII Linefeed (LF)
\r	ASCII Carriage Return (CR)
\t	ASCII Horizontal Tab (TAB)
\v	ASCII Vertical Tab (VT)
\ooo	Character with octal value ooo
\xhh	Character with hex value hh

Question : What will be the size of the following constants : "\a". "\a", "Manoj\'s", '\', "XY\ YZ"

Answer:

'\a'.	"\a"	"Manoj\'s"	"\"	"XY\ YZ
size is 1 as there is one character	size is 1 as there is one character enclosed in double quotes	size is 7 because \' is an escape sequence	size is 1. It is a character constant	size is 4. It is a multiline string

Question 7: What is used to represent Strings in Python ?

Answer:

Using Single Quotes (')	**Using Double Quotes (")**	**Using Triple Quotes o(''' or " " ")**
You can specify strings using single quotes such as 'Quote me on this'. All white space i.e. spaces and tabs are preserved as it is.	Strings in double quotes work exactly the same way as strings in single quotes. An example is "What's your name?"	You can specify multi-line strings using triple quotes. You can use single quotes and double quotes freely within the triple quotes. An example is "'This is a multi-line string. This is the first line. This is the second line. "What's your name?," I asked. He said "syed saif naqvi."'

Q What are comments in Python ?

Ans A **comment** is text that doesn't affect the outcome of a code. It is readable for programmer(a person who is writing the code) but ignored by python interpreter.

TYPES of comments :

Single line comment	**Multi line comment**
Which begins with # (hash)sign.	either write multiple line beginning with # sign or use triple quoted multiple line.
	'''this is to check the concept of python multiline comment '''

DOCSTRING AND COMMENT

Docstring	**Comment**
Docstrings are similar to commenting, but they are enhanced, more logical, and useful version of commenting. Docstrings act as documentation for the class, module, and packages.	Comments are mainly used to explain non-obvious portions of the code and can be useful for comments on Fixing bugs and tasks that are needed to be done.

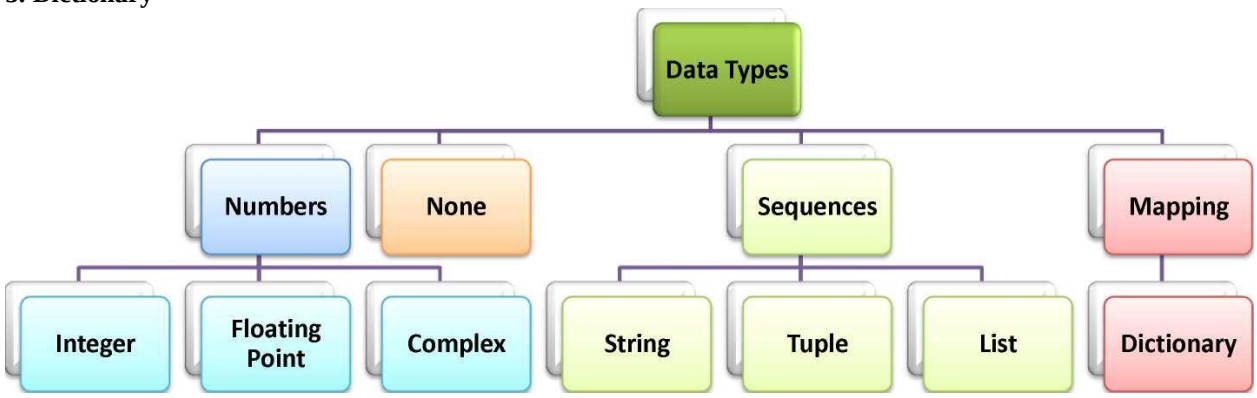
Docstrings are represented with opening and closing quotes	comments can start with a # at the beginning.
docstring can be accessed with the help function.	The comments cannot be accessed with the help function

DATA TYPES

Data types are used to identify the type of data and set of valid operations which can be performed on it.

Q How many types of data types in Python?
Ans

1. **Numbers(integer(whole no), floating(number with decimal)**
2. **String**
3. **List**
4. **Tuple**
5. **Dictionary**



Mutable Data types	Immutable Data types
Object can be changed after it is created,	Object can't change its value in position after it is created.
Mutable is behaving like pass by reference	Immutable is behaving like pass by value
Mutable objects: list, dictionary	Immutable objects: int, float, complex, string, tuple
Everything in Python is an object ,and every objects in Python can be either mutable or immutable.	

Q How we can find the address of any identifier or variable ?
Ans By using **id()** we can find the address or memory location of any variable.

```
>>>x=10
>>>id(x)
```

Q Which function is used to find the data type of an variable
Ans type() function is used to find the data type of any variable,object or function.

e.g. **>>>x=10** **>>>type(x)** **<class 'int'>**	**>>>y=12.3** **>>>type(y)** **<class 'float'>**	**>>>type("hello")** **<class 'str'>**	**>>>a=[1,23,36,48,5]** **>>>type(a)** **<class 'list'>**
>>>a=(1,23,36,48,5) **>>>type(a)** **<class 'tuple'>**	**>>>b='teena', 101, 90.5** **>>>type(b)** **<class 'tuple'>**	**>>>a={1:'teena',2:'heena',3:'sheena'}** **>>>type(a)** **<class 'dict'>**	

CONDITIONAL STATEMENTS
(DECISION MAKING)

If statement

It is used to control the flow of execution of the statements and also used to test logically whether the condition is true or false.

Syntax:

```
if  test_expression :
        Statement
```

If….else statement

The if…else statement is called alternative execution , in which there are two possibilities and the condition determines which one gets executed

Syntax:

```
if  test_expression :
            Statement of if
else:
            Statement of else
```

If …..elif…..else statement-

elif- is a keyword used in Python in replacement of else if to place another condition in the program. This is called chained conditional.
Chained conditions allows than two possibilities and need more than two branches

Syntax:

```
if  test_expression :
        Statement of if
elif expression:
        Statement of elif
else:
        Statement of else
```

Nested if…else statement

We can write an entire **if..else statement in another if** ….else statement called nesting, and the statement is called **nested if**.

In a nested if construct, you can have an if…elif…else construct inside an if…elif…else construct

Syntax:

```
if  test_expression :
    Statement(s)
    if  test_expression :
        Statement(s)
   elif expression:
        Statement(s)
else:
       Statement(s)
```

e.g.

```
n=int(input("enter number"))
if n<=15:
     if n==10:
        print("ok")
     else:
        print("use another option")
else:
    print("more than 15")
```

CONTROL STATEMENT (LOOPING STATEMENT) OR ITERATION

- Program statement are executed sequentially one after another.
- These are repetitive program codes, the computers have to perform to complete tasks.
- Three types of loops provided by Python are:

while loop	**for ….loop**	**Nested loop**

while loop

A while loop statement in python programming language repeatedly executes a target statement as **long as a given condition is true.**

Syntax:

```
while  expression:
       statement(s)
```

e.g.

```
n=int(input("enter no"))
s=0
while(n>0):
      s=s+n
```

	n=n-1 print(“the sum is”,s)

while loop- infinite loop

while 1: print(“*”) OR while 1: print(“*”)	while True: print(“*”) OR while True: print(“*”)

else statement with while loops

• Python supports have an else statement associated with a loop statement
• If the else statement is used with a while loop, the else statement is executed when the condition false.
	e.g.
	c=0
	while c<3:
	print(“inside loop”)
	c=c+1
	else:
	print(“outside loop”)

Note: else statement execution is optional in conditional statement(if statement) ,but in loops it will definitely execute

For loop

• The for loop is another repetitive control structure, and is used to execute a set of instructions repeatedly, until the condition becomes false. • The for loop in python is used to iterate over a sequence (list,tuple,string) or other iterable objects. Iterating(means use loop concept) over a sequence is called traversal.	

Syntax:
for val in expression:
Body of the for loop
 	
expression -> tuple|string|list|dictionary|range()
	e.g.
	for i in [1,2,3]: #list usage
	print(i)
	for i in (1,2,3): #tuple usage
	print(i)
	for i in “hello”: #string usage
	print(i)
	for i in {1:’a’,2:’b’}: #dictionary usage
	print(i)

range(start, end-1, step_value)
note:
if only one value is specified then it takes only end-1 and will take 0 as starting value
	e.g.
	for i in range(5): #take values 0,1,2,3,4
	print(i)
	for i in range(1,5): #take values 1,2,3,4
	print(i)
	for i in range(1,5,2): #take values 1,3
	print(i)

JUMP STATEMENTS

- Jump statements are used to transfer the program's control from one location to another.
- Means these are use d to alter the flow of a loop like - to skip a part of a loop or terminate a loop.

3 types of jump statements used in python. 1) break 2) continue 3) pass

break	continue	pass
It is used to terminate the loop	It is used to skip all the remaining statements in the loop and move controls back to the top of the loop.	• This statement does nothing. • It can be used when a statement is required syntactically but the program requires no action.

for val in "string":
  if val == "i":
  break
  print(val)
print("The end")
	for val in "string":
	  if val == "i":
	  continue
	  print(val)
	print("The end")
		for val in "string":
		  if val == "i":
		  pass
		  print(val)
		print("The end")

Output: s t r The end	Output s t r n g The end	Output s t r i n g The end

String data type- is an ordered and immutable data type that can hold any known character like letters, numbers, special characters etc . e.g. **"abcd", "$@&%", '???', "1234", "apy"**

Elements in a string can be individually accessed using its index (positive or negative)					
Positive index value	**0**	**1**	**2**	**3**	**4**
String	**H**	**E**	**L**	**L**	**O**
Negative index value	**-5**	**-4**	**-3**	**-2**	**-1**

Functions supported by string data type are:

isupper()	**islower()**	**isalnum()**	**isaplha()**	**isnumeric()**	**isdigit()**
isspace()	**capitalize()**	**title()**	**split()**	**endswith()**	**startswith()**
index()	**len()**	**find()**	**lower()**	**upper()**	**replace()**
strip()	**lstrip()**	**rstrip()**	**count()**	**swapcase()**	**splitlines()**

List data type- is an ordered and mutable group of comma-separated values of any datatype enclosed in square brackets []

Elements in a List can be individually accessed using its index (positive or negative)					
Positive index value	**0**	**1**	**2**	**3**	**4**
List	**1**	**23**	**36**	**48**	**5**
Negative index value	**-5**	**-4**	**-3**	**-2**	**-1**

Functions supported by LIST data type are:

append()	**extend()**	**pop()**	**del**	**remove()**	**index()**
find()	**len()**	**reverse()**	**sort()**	**clear()**	**max()**
min()	**insert()**	**list()**	**sum()**		

LIST and STRING

LIST	**STRING**
Lists are mutable	strings are immutable.
In consecutive locations, list stores the references of its elements.	In consecutive locations, strings store the individual characters
lists can store elements belonging to different types.	Strings store single type of elements-all characters
It is represented by []	It is represented by " " or ' '
e.g. L=[1,2,3,4]	e.g. s="hello" s1='world'

String and List – practice questions

Identify the valid declaration of P: P= [‘Jan’, 31, ‘Feb’, 28] a) dictionary b) string c)tuple d) list Ans (d) list	Find the output – >>>A = [17, 24, 15, 30] >>>A.insert(2, 33) >>>print (A [-4]) Ans 24
Find the output of the following: >>>Name = “Python Examination” >>>print (Name [: 8 : -1]) Ans noitanima	Given the lists Lst=[‘C’,’O’,’M’,’P’,’U’,’T’,’E’,’R’] , write the output of: print(Lst[3:6]) Ans PUT
What will be the output of following program: a='hello' b='virat' for i in range(len(a)): print(a[i],b[i]) An s h v e i l r l a o t	Give Output: colors=["violet", "indigo", "blue", "green", "yellow", "orange", "red"] del colors[4] colors.remove("blue") colors.pop(3) print(colors) Ans ['violet', 'indigo', 'green', 'red']
If the following code is executed, what will be the output of the following code? name="Computer Science with Python" print(name[2:10]) Ans mputer S	Given the list Lst = [12, 34, 4, 56, 78, 22, 78, 89], find the output of print(Lst[1:6:2]) Ans [34,56,22]
Give the output of the following code: L = [1,2,3,4,5,6,7] B = L B[3:5] = 90,34 print(L) Ans [1, 2, 3, 90, 34, 6, 7]	Write the output of the following python statements: Array=[8,5,3,2,1,1] print(Array[-1:-6:-1]) Ans 11235
Given the lists L=[1,3,6,82,5,7,11,92] , What will be the output of print(L[2:5]) Ans [6,82,5]	Given the lists L=[“H”, “T”, “W”, “P”, “N”] , write the output of print(L[3:4]) Ans [“P”]
Write the output of following code t1 = [10, 12, 43, 39] print(t1*3) Ans [10, 12, 43, 39, 10, 12, 43, 39, 10, 12, 43, 39]	Given the lists L=[1,3,6,82,5,7,11,92] , write the output of print(L[1:6]) Ans [3,6,82,5,7]
Identify the valid declaration of L: L = [‘Mon’, ‘23’, ‘hello’, ’60.5’] a). dictionary b). string c).tuple d). list Ans (d) list	If the following code is executed, what will be the output of the following code? name="ComputerSciencewithPython" print(name[3:10]) Ans puterSc
Which statement is not correct a) The statement x = x + 10 is a valid statement	What will be the output of following code snippet: msg = “Hello Friends” msg [: : -1]

b) List slice is a list itself. c) Lists are immutable while strings are mutable. d) Lists and strings in pythons support two way indexing. e) Ans (c)	a) Hello b) Hello Friend c) 'sdneirF olleH' d) Friend Ans (c)
Identify the valid declaration of L: L = [1, 23, 'hi', 6] (i)list (ii)dictionary (iii)array (iv)tuple Ans (i) list	A list is declared as L=[(2,5,6,9,8)] What will be the value of print(L[0])? Ans (2,5,6,9,8)

What will be the output when the following code is executed
>>> str1 = "helloworld"
>>> str1[: -1]
a). 'dlrowolleh' b).'hello'
c).'world' d).'helloworl'
Ans (a)
	If the following code is executed, what will be the output of the following code?
	name="Kendriya Vidyalaya Class 12"
	print(name[9:15])
	Ans Vidyal

Given the lists L=[1,30,67,86,23,15,37,131,9232] , write the output of print(L[3:7]) Ans [86, 23, 15, 37]	A list is declared as Lst = [1,2,3,4,5,6,8] What will be the value of sum(Lst)? Ans 29
Identify the valid declaration of L: L = ('Mon', '23', 'hello', '60.5') a). dictionary b). string c). tuple d). list Ans (c)	If the following code is executed, what will be the output of the following code? name="Computer_Science_with_Python" print(name[-25:10]) Ans puter_S
How many times is the word 'hello' printed in the following statement? S='python rocks' for ch in s[3:8]: print('hello') (i) 5 (ii) 6 (iii) 7 (iv) 4 Ans (i)	Given the list L=[1,3,6,82,5,7,11,92], write the output of print(L[1:4:2] Ans [3,82]
Given the string x="hello world", write the output of print(x[:2],x[:-2]) Ans he hello wor	Identify the correct option to print the value 80 from the list L=[10,20,40,80,20,5,55] (i) L[80] (ii) L[4] (iii) L[L] (iv) L[3] Ans (iv) L[3]
if a=[5,4,3,2,2,2,1], evaluate the following expression: print(a[a[a[a[2]+1]]]) Ans 2	Give the output of the following: x="Marvellous" print(x[2:7], "and" , x[-4:-1]) Ans rvell and lou
What is the output produce by the following code? alst=[1,2,3,4,5,6,7,8,9] print(alst[: :3]) Ans [1, 4, 7]	Is there any difference in 'a' or "a" in python? Ans. No A string with zero character is called ___string Ans empty string

Is there any difference between 1 or '1' in python? Ans. Yes	Python does not support a character type.(T/F) Ans True. (Python supports string type)

- Write a code to create empty string 'str1' Ans. str1 = ' '
- What do you mean by traversing a string?
  Ans. Traversing a string means accessing all the elements of the string one by one by using index value.
- What is the index value of first element of a string? Ans. 0
- What is the index value of last element of a string? Ans. -1
- If the length of the string is 10 then what would be the positive index value of last element?
- Ans. 9
- If the length of string is 9, what would be the index value of middle element? 9 Ans. 4
- Index value of a string can be in float. (T/F) Ans. False
- What type of error is returned by following statement, if the length of string 'str1' is 10.
  print(str1[13]) Ans. Index error

Tuple Data Type

is an <u>ordered</u> and immutable **group of comma-separated values of any datatype enclosed within *parentheses ()*. e.g. (1,23,36,48,5), 'teena', 101, 90.5, ('a', 'e', 'i', 'o', 'u')**

Elements in a tuples can be individually accessed using its index (positive or negative)					
Positive index value	**0**	**1**	**2**	**3**	**4**
Tuple	**1**	**23**	**36**	**48**	**5**
Negative index value	**-5**	**-4**	**-3**	**-2**	**-1**

Functions supported by tuple data type are:

find()	**len()**	**index()**	**sorted()**	**max()**
min()	**count()**	**tuple()**	**sum()**	

LIST and TUPLES

LIST	TUPLES
lists are mutable.	Tuples are immutable
List can grow or shrink	tuples cannot grow or shrink
For list []symbol is used	For tuples () symbol is used
e.g. L=[1,2,3,4]	e.g. T=(1,2,3,4)

Tuple: 1 mark Questions

A tuple is declared as t1=(1,2,3,3,5,6,5,6,7,3,8,9) what will be the value of print(t1.count(3)) Ans 3	Find the output from the following code: t=tuple() t=t+('Python',) print(t) print(len(t)) ans ('Python',) 1
Suppose a tuple T is declared as T = "Yellow", 20, "Red" a, b, c = T print(a) which of the following is correct? (a) ('Yellow', 20, 'Red') (b) TypeError (c) Yellow Ans (c)"Yellow"	Choose the correct way to access value **20** from the following tuple aTuple = ("Orange", [10, 20, 30], (5, 15, 25)) a) aTuple[1:2][1] b) aTuple[1:2](1) c) aTuple[1][1] Ans (c) aTuple[1][1]
Suppose a tuple T is declared as T = (10, 12, 43, 39), which of the following is Incorrect? a) print(T[1]) b) print(max(T)) c) print(len(T)) d) None of the above Ans (d)	Suppose a tuple T1 is declared as T1 = (10, 20, 30, 40, 50) which of the following is incorrect? a) print(T[1]) b) T[2] = -29 c) print(max(T))d) print(len(T)) Ans (b)
Suppose a tuple T is declared as T = (10, 12, 43, 39), which of the following is incorrect? a) print(T[1]) b) T[3] = 9 c) print(max(T)) d) print(len(T))	Identify the data type of X: X = tuple(list((1,2,3,4,5))) a)Dictionary (b) string (c) tuple (d) list Ans tuple

Ans (b) because tuple is immutable.	
A tuple is declared as T = (20,5,16,29,83) What will be the problem with the code T[1]=100. Ans It will show error tuple is immutable.	Suppose a tuple T is declared as T = (10, 20, 30, 40), what will be the output of print(T*2) Ans 20,40,60,80
t1=(2,3,4,5,6) print(t1.index(4)) output is a). 4 b). 5 c). 6 d). 2 Ans (d) 2	What is the length of the tuple shown below? t=((('a',1),'b','c'),'d',2),'e',3) Ans 3
A tuple is declared as T = (2,5,6,9,8) What will be the value of sum(T)? Ans 30	Which of the following statements will create a tuple ? (a) Tp1 = (“a”, “b”) (b) Tp1= (3) * 3 (c) Tp1[2] = (“a”, “b”) (d) None of these Ans (a)
Find the output of the following: >>>S = 1, (2,3,4), 5, (6,7) >>> len(S) Ans 4	Identify the valid declaration of Rec: Rec=(1,“Vikrant”,50000) (i)List (ii)Tuple (iii)String (iv)Dictionary Ans (ii) Tuple
A tuple is declared as T = (1,2), (1,2,4), (5,3) What will be the value of min(T) ? Ans (1,2)	Consider the tuple in python named DAYS=(”SUN”,”MON”,”TUES”) Identify the invalid statement(s) from the given below statements: a). S=DAYS[1] b). print(DAYS[2]) c). DAYS[0]=”WED” d). LIST=list(DAYS) Ans (c) DAYS[0]=”WED”
Suppose a tuple Tup is declared as Tup = (12, 15, 63, 80), which of the following is incorrect? a) print(Tup[1]) b) Tup[2] = 90 c) print(min(Tup)) d) print(len(Tup)) Ans (b) Tup[2]=90	What is the output of the following code: for i in range(-3,4,2): print(i, end = '$') Ans -3$-1$ 1$ 3$
If a is (1, 2, 3), what is the difference (if any) between a*3 and [a, a, a]? **Ans:** a*3 is different from [a,a,a] because, a*3 will produce a tuple (1,2,3,1,2,3,1,2,3) and [a, a, a] will produce a list of tuples [(1,2,3),(1,2,3),(1,2,3)].	If a is (1, 2, 3), is a *3 equivalent to a + a+ a? Ans yes
Does a slice operator always produce a new Tuple? Ans: Yes	How is an empty Tuple created? Ans: T=() or T=tuple()
How is a tuple containing just one element created? Ans: T=3, or T=(4,)	What is the difference between (30) and (30,)? Ans: (30) is an integer while (30,) is a tuple
Predict the output G=’a’,’b’ H=(‘a’,’b’) print(G==H) Ans True	Predict the output T=(1,)*3 T[0]=2 print(T) Ans typeError. Tuple is immutable so can’t do changes

Find output (a,b,c)=(1,2,3) Ans this will assign 1 to a , 2 to b and 3 to c	Find output a,b,c,d=(1,2,3) Ans Error becoz not enough values to pack(expected 4, got 3)
Find output a, b, c, d, e = (p, q, r, s, t) = t1 Ans If tuple t1 has 5 values then this will assign first value of t1 in to a and p , next value to b and q and so on.	How can you add an extra element to a tuple? Ans T=T+(9,)
Which of the following will create a tuple x? (a) x = (1) (b). x = (1,) (c) . x = {1} (d) None of the above Ans (b)	What is the output of following line of code ? x= (2, 1, 4) print(len(x)) Ans 3
What is the output of following line of code? x,y, z = (3.3, 4.1, 2.2) print(x) Ans 3.3	What is the output of following line of code? x,_, z = (3.3, 4.1, 2.2) print(_) Ans 4.1
What is the output of following line of code ? _,_ = (3.3, 4.1, 2.2) print(_) Ans Error	What is the output of following line of code ? x = (3.3, 4.1, 2.2) *2 print(x) Ans (3.3, 4.1, 2.2, 3.3, 4.1,2.2)
What is the output of following line of code? x = (3.3, 3.3, 4.1, 4.1, 2.2, 2.2) print(x.index(3.3)) Ans 0	What is the output of following line of code? x = (3.3, 3.3, 4.1, 4.1, 2.2, 2.2) print(x[0::2] == x[1::2]) Ans True
Which of the following method will not work with Python tuple object? a). sort() b). count() c). index() d). None of the above Ans (a)	

SIMILARITIES AMONG STRING, LIST AND TUPLE

<table>
<tr><td></td><td>STRING (store text type of data)</td><td>LIST</td><td>Tuple</td></tr>
<tr><td rowspan="4">similarities</td><td colspan="3">1.Slicing- extract limited information or access a range of characters</td></tr>
<tr><td colspan="3">2. Elements can be individually accessed using its index (positive or negative)</td></tr>
<tr><td colspan="3">3. Iterating/Traversing - Each character can be accessed sequentially using for loop.
<table>
<tr><td>for i in “hello”: #string usage
print(i)</td><td>for i in [1,2,3]:
print(i)</td><td>for i in (1,2,3):
print(i)</td></tr>
<tr><td>s=”hello”
for i in s:
print(i)</td><td>t=[1,2,3,4]
for i in t:
print(i)</td><td>t=(1,2,3,4)
for i in t:
print(i)</td></tr>
<tr><td>s=”hello”
for i in range(len(s)):
print(i,s[i])</td><td>t=[1,2,3,4]
for i in range(len(t)):
print(i,t[i])</td><td>t=[1,2,3,4]
for i in range(len(t)):
print(i,t[i])</td></tr>
</table></td></tr>
<tr><td colspan="3">4. Common functions
<table>
<tr><td colspan="3">+ (concatenation (combine)),
* (replicate),</td></tr>
<tr><td>s=”hello”
print(s+”world”)
print(s*2)</td><td>t=[1,2,3]
print(t+[4,5,6])
print(t*2)</td><td>t=[1,2,3]
print(t+[4,5,6])
print(t*2)</td></tr>
<tr><td colspan="3">len(),
in (check for availability,</td></tr>
</table></td></tr>
</table>

	not in **count(element/string)---** **index(value)**		

	s=”hello”
	print(s.count(‘l’))
	print(len(s))
	print(s.index(‘l’))
	if ‘l’ in s:
	  print(“ok”)
		t=[1,2,3,4,2]
		print(t.count(2))
		print(len(t))
		print(s.index(2))
		if 3 in t:
		  print(“ok”)
			t=(1,2,3,4,2)
			print(t.count(2))
			print(len(t))
			print(s.index(2))
			if 3 in t:
			  print(“ok”)	

Dictionary Data type

It is an unordered and mutable set of comma-separated key:value pair enclosed within *curly braces {}*.
e.g. vowels ={'a':1,'b':2,'c':3,'d':4,'e':5}

here, 'a', 'b', 'c', 'd', 'e' are the keys & 1,2,3,4,5 are the values

Functions supported by dictionary data type are:

len()	**clear()**	**get()**	**items()**	**values()**	**max()**	**min()**
keys()	**update()**	**pop()**	**del**	**popitem()**	**sorted()**	**setdefault()**

- Dictionaries are mutable - (can modify its contents(values) but Key must be unique and immutable)
- In dictionary keys are unique but values can be duplicate.
- Keys are immutable but values are mutable.

LIST and DICTIONARY

LIST	DICTIONARY
lists are sequential collections(ordered)	dictionaries are non-sequential collections(unordered).
In LIST the values can be obtained using positions	But in dictionaries the values can be obtained using keys
this thing is not possible in list.	By changing the sequence of key we can shuffle the order of elements of dictionary
e.g. L=[1,2,3,4]	e.g. d={1:”hello”,2:”world”}

Dictionary: 1 mark Questions

What will be the result of the following code?
>>>d1 = {“abc” : 5, “def” : 6, “ghi” : 7}
>>>print (d1[0])
(a) abc (b) 5 (c) {“abc”:5} (d) Error Ans (d) Error

Which of the following statement create a dictionary?
a) d = { }
b) d = {“john”:40, “peter”:45}
c) d = (40 : “john”, 45 : “peter”}
d) All of the above Ans (d) all of the above

Which statement is correct for dictionary?
(i) A dictionary is a ordered set of key:value pair
(ii) each of the keys within a dictionary must be unique
(iii) each of the values in the dictionary must be unique
(iv) values in the dictionary are immutable
Ans (ii) each of the keys within a dictionary must be unique

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']

Ans (i) Day={1:'monday',2:'tuesday',3:'wednesday'}

Declare a dictionary in python named QUAD having Keys(1,2,3,4) and Values("India","USA","Japan","Australia")
Ans QUAD={1:"India", 2:"USA", 3:"Japan", 4:"Australia"}

Write a statement in Python to declare a dictionary whose keys are 1,2,3 and values are Apple, Mango and Banana respectively.
Ans Dict={1:'Apple', 2: 'Mango',3 : 'Banana'}

Given
employee={'salary':10000,'age':22,'name':'Mahesh'}
employee.pop('age')
what is output
print(employee) Ans {'salary':10000,'name':'Mahesh'}

Write the ouput of following code:
d={'amit':19,'vishal':20}
print(d.keys()) Ans dict_keys(['amit', 'vishal'])

What will be output of following:
d = {1 : "SUM", 2 : "DIFF", 3 : "PROD"}
for i in d:
    print (i)

a) 1 2 3	b) SUM DIFF PROD	c) 1 SUM 2 DIFF 3 PROD	d) 3 SUM 3 DIFF 3 PROD

Ans (a)

Write a statement in Python to declare a dictionary whose keys are 'Jan', 'Feb', 'Mar' and values are 31, 28 and 31 respectively.
Ans Month={'Jan':31,'Feb':28,'Mar':31}

Write a statement in Python to declare a dictionary whose keys are 5, 8, 10 and values are May, August and October respectively.
Ans Dict= {5:"May", 8: "August", 10: "October"}

Write a code to add the following key-value to a given dictionary.
A={'class':'VI', 'Sec':'B','Rollno':1}

Key	Value
Fee	Done
Route	AB

Ans
A["Fee"]="Done"
A["Route"]="AB"

Which of the following is the correct form of using dict()?
a) dict([('a' , 45), ('b', 78)])
b) dict({'a' : 45, 'b' :78})
c) dict('a'=45, 'b'=78)
d) All of these Ans (d)

a={1:10,2:20,3:30}
(a) Write code to delete the second element using del command. Ans del(a[2])
(b) Write code to delete the third element using pop() function. Ans a.pop(3)

Modules

Q How do we create modules in Python?

Ans Modules in Python are simply Python files with a .py extension. The name of the module will be the name of the file.

Module and Package

Module	Package
A module is a single file (or files) that are imported under one import and used.	A package is a collection of modules in directories that give a package hierarchy.
No _init_.py is required in module	In a package _init_.py file should be included

---

How we can import library in Python program?
Ans: - We can import a library in python program with the help of **import** command.
e.g: -
import random
import mysql.connector as ms

Q What are the different ways of importing modules in Python?

1. Importing entire module
2. Importing selected function/object from a module
3. Importing all function/objects of a module

importing entire module	importing selected function/object from a module	importing all function/objects of a module
syntax import module_name	Syntax: from module_name import function_name	syntax from module_name import *
e.g. import math print(math.sqrt(4))	e.g. from math import sqrt print(sqrt(4)) from math import sqrt,pow print(sqrt(4)) print(pow(3,2))	e.g. from math import * print(sqrt(4)) print(pow(3,2))

Import Statement and From Import Statement

Import Statement	From Import Statement
import all the modules from that package	only imports the required module as specified

math	random	pickle	csv	mysql.connector	sys	os
sin() cos() tan() log() sqrt() floor() exp() ceil() pow() round() pi fmod() factorial()	random() randint() randrange()	dump() load()	reader() writer() writerow() writerows()	connect() isconnected() execute() cursor() fetchall() fetchaone() fetchmany() rowcount	stdin stdout stderr	remove rename

dir() – is used to display all the functions related to particular module syntax: dir(module name)

help()- is to display the syntax of particular function. syntax: help(modulename.functionname)

MODULE, PACKAGE AND LIBRARY

MODULE	PACKAGE	LIBRARY
• Module is a file which contains python functions, global variables etc. • It is nothing but .py file which has python executable code / statement	• Package is a collection of modules. • Each package in Python is a directory which MUST contain a special file called __init__.py. • This file can be empty, and it indicates that the directory it contains is a Python package, so it can be imported the same way a module can be imported	• Library is a collection of packages. • There is no difference between package and python library conceptually. • Some examples of library in Python are: Python standard library containing math module, random module, statistics module etc.

Q What is the use of _init.py file?

Ans

1. Each package in Python MUST contain a special file called __init__.py.
2. This file can be empty.
3. it specifies that the directory it contains is a Python package.
4. it can be imported the same way a module can be imported.

Module Identification- I mark questions

Name the Python Library modules which need to be imported to invoke the following functions:

(i) ceil()	(ii) randrange()	Ans (i) math (ii) random
(i) sin( )	(ii) randint ( )	Ans (i) math (ii) random
(i) sqrt()	(ii) randint()	Ans (i) math (ii) random
(i) dump()	(ii) random()	Ans (i) pickle (ii) random
(i) round()	(ii) load()	Ans (i) math (ii) pickle
(i) writerow()	(ii) sqrt()	Ans (i) csv (ii) math
(i) replace()	(ii) load()	Ans (i) string (ii) pickle
(i) cursor()	(ii) pi	Ans (i) mysql.connector (ii) math
(i) sin()	(ii) reader()	Ans (i) math (ii) csv
(i) cursor()	(ii) reader()	Ans (i) mysql.connector (ii) csv
i) stdin()	ii) load()	Ans (i) sys (ii) pickle
(i) log()	(ii) writer()	Ans (i) math (ii) csv

Which of the following functions generates an integer?
a) uniform( ) b) randint( ) c) random( ) d) None of the above Ans (b) randint()

Which module is used for working with CSV files in Python? Ans csv

Name the built-in function / method that is used to return the length of the object. Ans len()

Name the function/method required for
(a) Finding second occurrence of m in **madam**. Ans (a) index or find()
(b) Get the position of an item in the list Ans (b) find() or index ()

Observe the following Python code and write the name(s) of the header file(s), which will be essentially required to run in a Python compiler.

```
X=randint(1,3)
Y=pow(X,3)
print("hello".upper())
```

Ans random,math,string

Name the built-in mathematical function / method that is used to return square root of a number
Ans sqrt()

Name the Python library module(s) which needs to be imported to run the following program:

```
print(sqrt(random.randint(1,16)))
```

Ans math,random

Which of the following function is used to write data in binary mode?
a) write ( ) b) output ( ) c) dump ( ) d) send ( ) Ans (c) dump

Q What is Type conversion? Explain Implicit and Explicit type Conversion.

Ans

The process of converting the value of one data type (integer, string, float, etc.) to another data type is called type conversion.

Python has two types of type conversion.

Implicit type conversion	**Explicit Type conversion**
Python automatically converts one data type to another data type. This process **doesn't need any user** involvement.	Users(programmer) convert the data type of an object to required data type. We use the predefined functions like **int(),float(),str()** etc.
e.g. >>>a=3 >>>b=3.4 >>>d=a+b >>>d 6.4	>>>a=3 >>>c=3.4 >>>str(a) #str()function converts integer to string. '3' >>>str(c) #str() function converts float number to string '3.4' >>>b=3.4 >>>d='3' >>>int(b) # int() function converts floating number to integer 3

```
>>>d=input("enter any number") #input() takes value in the string form
4
>>>d
'4'
>>>d=int(input("enter any number")) #int()function converts string to integer
4
>>>d
4
```

input() function always enter string value in python .
There is need of int(),float() function can be used for data conversion.

Function

A function is a subprogram that acts on data and often returns a value

ADVANTAGES

Program development made easy and fast	**Program testing becomes easy**	**Code sharing becomes possible**	**Code re-usability increases**	**Increases program readability**

Types of Functions

Built –in functions **(Pre-defined functions)**	Functions defined in the modules **(function using Libraries/modules)**	User defined functions **(defined by the programmer)**
int(),type(),float(),str(), print(),input(),ord(),hex(),oct() , len() etc	**sin(),floor(),ceil(),dump(),load() ,random(),writer() etc**	**PARTS OF USER DEFINED FUNCTIONS** • Function definition(def keyword) • Arguments(**function calling**) • Parameters(**function definition**) • Function Calling

Note: parameters/ arguments are the variables/values what are provided in the function definition/calling.

Categories of user defined functions

void functions	**Non void functions**
those functions which are **not returning values** to the calling function	those functions which are **returning values** to the calling function return value can be literal, variable , expression

Give the basic structure of user defined function.

```
def funtionname(parameters name):
        statement of the function
function_calling(arguments)
```

Q What are Arguments and Parameters?

Arguments	**Parameters**
passed values in function call	received values in function definition.
Passed values can be in the form of variable, literal or expression	It should be of variable types.
def fun(a,b):	def fun(a,b): #parameters

c=a+b print(c) x=2 y=4 fun(x,y) #variables fun(5,6) #literals fun(x+3,y+6) #expressions here x,y , 5,6, x+3, y+3 are arguments	c=a+b print(c) here a and b are the parameters

Q What are actual and formal arguments /parameters?

Formal parameter	Actual Parameter
A formal parameter, i.e. a parameter, is in the function definition.	**An actual parameter, i.e. an argument, is in a function call.**
def sum(x,y): #x, y are formal arguments **z=x+y** **return z #return the result** **x,y=4,5** **r=sum(x,y) #x, y are actual arguments** **print(r)**	

Q What is the use of return statement?

Ans It is used to return either a single value or multiple values from a function.

Q Can Python return Multiple values and in what forms?

Ans Python returns Multiple values in the form of **tuples** :

1. Received values as tuple	e.g. def fun(a,b): return a+b,a-b x=2 y=4 z=fun(x,y) print(z)
2. Unpack received values as tuple	e.g. def fun(a,b): return a+b,a-b x=2 y=4 d,z=fun(x,y) print(d,z)

Q Explain different types of arguments in detail

Ans

1. **Positional parameters (Required Arguments)** - these	2. **Default Arguments**- if right parameter have default value then left parameters can also have default value. this argument can be skipped at the time of function calling	3. **Keyword Arguments (Named Arguments)-**

arguments must be provided for all parameters		We can write arguments in any order but we must give values according to their name

e.g.
def fun(a,b):
c=a+b
print(c)
x=10
y=3
fun(x,y)
	e.g.
	def fun(a,b,c=3):
	d=a+b+c
	print(d)
	x=10
	y=3
	fun(x,y) #here c parameter value is 3
	z=5
	fun(x,y,z) #here it will be take parameter c value as 5
		e.g.
		def fun(a,b,c):
		print(a,b,c)
		
		fun(b=3,c=4,a=2)

Q What do you mean by scope of variables?

Ans Scope means –to which extent a code or data would be known or accessed. 2 types of scope are: Global scope and Local scope.

Global variable Vs Local Variable

Global variable	Local Variable
Global variables are defined outside of all the functions, generally on top of the program.	A local variable is declared within the body of a function or a block
The global variables will hold their value throughout the life-time of your program.	Local variable only use within the function or block where it is declare.

a=10 //global variable
def fun():
b=20
print(b) //local variable
print(a)		

Naming Resolution- LEGB-(LOCAL, ENCLOSED, GLOBAL and BUILT-IN)

1. Variable in global scope not in local scope e.g def fun1(x,y): s=x+y print(num1) return s num1=100 num2=200 sm=fun1(num1,num2) print(sm)	**2. Variable neither in in local scope nor in global scope** e.g. def fun(): print("hello",n) fun() # Output: Name error: name 'n' is not defined
3. Variable name in local scope as well as in global scope e.g. def fun(): a=10 print(a) a=5 print(a) fun() print(a) # output 5 10 10	**4. Using global variable inside local scope (this case is discouraged in programming)** e.g. def fun(): global a a=10 print(a) a=5 print(a) fun() # output 5 10 10

	print(a)

Function Questions

Write a function that receives two numbers and generates a random number from that range and prints it.

```
import random
def fun(a,b):
        print(random.randint(a,b))
```

Write a function that takes a positive integer and returns the ones position digit of the integer. E.g. if the integer is 432, then the function should return 2.

```
def fun(a):
        r=a%10
        print(r)
```

Write a program having a function that takes a number as argument and calculates cube for it. The function does not return a value. If there is no return value passed to the function in function call, the function should calculate cube of 2.

```
def fun(n=2):
        print(n**3)
```

Write a small python function that receive two numbers and return their sum, product, difference and multiplication.

```
def ADD(X,Y):
        return (X+Y)
def PRODUCT(X,Y):
        return(X*Y)
def DIFFERENCE(X,Y):
        return(X-Y)
```

Write the definition of a function Alter(A, N) in python, which should change all the multiples of 5 in the list to 5 and rest of the elements as 0.

#sol

```
def Alter ( A,  N):
    for i in range(N):
        if(A[i]%5==0):
            A[i]=5
        else:
            A[i]=0
    print("LIst after Alteration", A)
```

Write the definition of a function Alter(A, N) in python, which should change all the odd numbers in the list to 1 and even numbers as 0.

#sol

```
def Alter ( A,  N):
    for i in range(N):
        if(A[i]%2==0):
            A[i]=0
        else:
            A[i]=1
    print("LIst after Alteration", A)
```

Write code for a function void oddEven (s, N) in python, to add 5 in all the odd values and 10 in all the even values of the list 5.

#sol

```
def oddEven ( s,  N):
    for i in range(N):
        if(s[i]%2==0):
            s[i]=s[i]+5
        else:
            s[i]=s[i]+10
    print("LIst after Alteration", s)
```

Write a code in python for a function void Convert (T, N) , which repositions all the elements of array by shifting each of them to next position and shifting last element to first position.

e.g. if the content of array is

0	1	2	3
10	14	11	21

The changed array content will be:

0	1	2	3
21	10	14	11

sol:

```
def Convert ( T,  N):
    for i in range(N):
        t=T[N-1]
        T[N-1]=T[i]
        T[i]=t
     print(T)
```

Write a code in python for a function Convert (T, N) , which repositions all the elements of array by shifting each of them to next position and shifting first element to last position.
e.g. if the content of array is

0	1	2	3
10	14	11	21

The changed array content will be:

0	1	2	3
14	11	21	10

```
'''
def Convert ( T,  N):
    t=T[0]
    for i in range(N-1):
        T[i]=T[i+1]
    T[N-1]=t
    print("after conversion",T)
```

Write a function SWAP2BEST (ARR, Size) in python to modify the content of the list in such a way that the elements, which are multiples of 10 swap with the value present in the very next position in the list

sol :

```
def SWAP2BEST(A,size):
  i=0
  while(i<size):
    if(A[i]%10==0):
      A[i],A[i+1]=A[i+1],A[i]
      i=i+2
    else:
      i=i+1
  return(A)
```

Write a function CHANGEO ,which accepts an list of integer and its size as parameters and divide all those list elements by 7 which are divisible by 7 and multiply list elements by 3.

sol:

```
def CHANGEO(A,S):
    for i in range(S):
        if(A[i]%7==0):
            A[i]=A[i]/7
        else:
            A[i]=A[i]*3
    print("after change",A)
```

Write function which accepts an integer array and size as arguments and replaces elements having odd values with thrice its value and elements having even values with twice its value.
Example : if an array of five elements initially contains elements as 3, 4, 5, 16, 9
The function should rearrange the content of the array as 9, 8, 15, 32,27

sol

```
def fun(d,s):
    for i in range(s):
        if(d[i]%2!=0):
            d[i]*=3
        else:
            d[i]*=2
    print("after change",d)
```

Write a function which accepts an integer array and its size as parameters and rearranges the array in reverse.
Example:
If an array of nine elements initially contains the elements as 4, 2, 5, 1,6, 7, 8, 12, 10
Then the function should rearrange the array as 10, 12, 8, 7, 6, 1, 5, 2, 4

sol

```
def fun(a,size):
    for i in range(size-1,-1,-1):
        print(a[i],end=" ")
```

Write a function which accepts an integer array and its size as arguments and swap the elements of every even location with its following odd location.
Example :
If an array of nine elements initially contains the elements as 2,4,1,6,5,7,9,23,10
then the function should rearrange the array as 4,2,6,1,7,5,23,9,10

sol:

```
def fun(d,s):
    for i in range(0,s-1,2):
        if(i%2==0):
            d[i],d[i+1]=d[i+1],d[i]

    print("after swapping",d)
```

Write a user defined function findname(name) where name is an argument in Python to

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

delete phone number from a dictionary phonebook on the basis of the name, where name is the key.

sol

```
def findname(d):
    n=input("enter key which u want to delete")
    d.pop(n)
    print("dictionary after deletion",d)
```

list of STATES, which are starting with alphabet M. For example: If the list STATES contains["MP","UP","WB","TN","MH","MZ","DL","BH","RJ","HR"]
The following should get displayed MP MH MZ

```
def MSEARCH(STATES):
    for i in STATES:
        if(i[0]=='M'):
            print(i)
```

Write a Get2From1( ) function in to transfer the content from one list ALL[ ] to two list Odd[ ]and Even[].
The Even should contain values from places (0,2,4,……) of ALL[] and Odd[] should contain values from places (1,3,5,…….).

```
'''

even=[]
odd=[]
def fun(all,s):
    for i in range(0,s-1):
        if(i%2==0):
            even.append(all[i])
        else:
            odd.append(all[i])

    print("even list",even)
    print("odd list",odd)
```

Identify the type one or more types of arguments in the following codes:

a)
```
def sum(a=4,b=6):
        return a+b
print (sum( ))
```
Ans #default

b)
```
def sum(a=1,b):
        return a+b
print(sum(b=20, a=5 ))
```
Ans #keyword

c)
```
def sum(*n):
        for i in n:
                total+=I
        return total
print (sum(4,3,2,1,7,8,9))
```
Ans #positional

d)
```
def sum(a=1,b):
        return a+b
print(sum(10,20))
```
Ans #positional

Consider the following function calls with respect to the function definition.
Identify which of these will cause an error and why?

```
def calculate(a,b=5,c=10):
        return a*b-c
```

i) calculate(12,3)
ii) calculate(c=50,35)
iii) calculate(20, b=7, a=15)
iv) calculate(x=10,b=12)

i) calculate(12,3)
Ans #no error

ii) calculate(c=50,35)
Ans #we should have to specify the value to all the parameters .corrected calling is calculate(c=50,a=35,b=12)

iii) calculate(20, b=7, a=15)
Ans #name c is missing . corrected code: calculate(c=20, b=7, a=15)

iv) calculate(x=10,b=12)
Ans#name x is not mentioned in the function parameter . corrected code:
calculate(c=10, b=12, a=15)

find and write the output of the following python code:

(a)

```
def change(p,q=20):
        p=p+q
        q=p-q
        print(p,'#',q)
        return(p)
        r=150
s=100
r=40
r=change(r,s)
print(r,'#',s)
s=change(s)
```

Ans

140 # 40
140 # 100
120 # 100

(b)

```
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

(c)

```
def show(x,y=2):
        print(ord(x)+y)
show('A')
show('B',3)
```

Ans

67
69

(d)

```
def upgrade(a,b=2):
        a=a+b
        print(a+b)
i,j=10,20
upgrade(i,5)
upgrade(i)
```

Ans

20
14

(e)

```
def func(a,b=5,c=10):
        print("a:",a," b:",b, " c:",c)
func(3,7)
func(25,c=24)
func(c=50, a=100)
```

Ans

a: 3 b: 7 c: 10
a: 25 b: 5 c: 24
a: 100 b: 5 c: 50

(f)

```
x=1
def cg():
        global x
        x=x+1
cg()
print(x)
```

Ans

2

(g)

```
def wish(message, num=1):
        print(message * num)
wish('Good',2)
wish("Morning")
```

Ans

GoodGood
Morning

File Handling

Q what is the usage of file?

Ans File is created for permanent storage of data or that stores data in an application.

Q How many types of files supported by Python?

Ans 3 types of files 1)text file 2)binary file 3) CSV file)

Q Why is it necessary to close a file?

Ans

1. **close() breaks the link of file object**	2. **In case we forgot to close the file , Files are automatically closed at the end of the program,**
3. **After using this method, an opened file will be closed and a closed file cannot be read or written any more.**	4. ***if our program is large and we are reading or writing multiple files that can take significant amount of resource on the system. If we keep opening new files carelessly, we could run out of resources.***

Q Write the different ways to open a file

Ans

open()	**with statement**
file_object/file_handler = open(<file_name>, <access_mode>).	**with statement-** in this mode , no need to call close() function syntax: with open**(<file_name>, <access_mode>) as file_object/file_handler**

file_name = name of the file ,enclosed in double quotes.

access_mode= It is also called file mode. It determines ,kind of operations can be performed with file,like read,write etc

If no mode is specified then the file will open in read mode.

File mode or access mode

Text file	Binary file	CSV file
r	rb	r
w	wb	w
a	ab	a
r+		
w+		
a+		

e.g **f=open("abc.txt",'r')** **f.write("hello")** **f.close()**	**e.g.** **with open("abc.txt") as f:** **f.write("hello")**

Q purpose of read(n) method?

This method reads a string of size (here n) from the specified file and returns it. If size parameter is not given or a negative value is specified as size, it reads and returns up to the end of the file. At the end of the file, it returns an empty string

Q Name two important functions of CSV module which are used for reading and writing.

csv.reader() returns a reader object which iterates over lines of a CSV file

csv.writer() returns a writer object that converts the user's data into a delimited string. This string can later be used to write into CSV files using the writerow() or the writerows() function.

r+ and w+

r+	w+
Opens a file for reading and writing, placing the pointer at the beginning of the file.	Opens a file for writing and reading, overwrites the existing file if the file exists. If the file does not exist, creates a new file for writing and reading

r and a

r	a
Reading only	for appending
Sets file pointer at beginning of the file	Move file pointer at end of the file
This is the default mode.	Creates new file for writing,if not exist
e.g. f=open("abc.dat",'r')	e.g. f=open("abc.dat",'a')

TEXT FILE AND BINARY FILE

TEXT FILE	BINARY FILE
A file whose contents can be viewed using a text editor is called a text file. (.txt)	**A binary file stores the data in the same way as as stored in the memory.**
A text file is simply a sequence of ASCII or Unicode characters.	**Best way to store program information.**
EOL (new line character i.e. enter) or internal translation occurs	**No EOL or internal translation occurs(not converted into other form becoz it is converted into computer understandable form i.e. in binary format)**
e.g. Python programs, contents written in text editors	**e.g. exe files,mp3 file, image files, word documents**

Relative and Absolute Path

Relative Path	Absolute Path
The relative path is the path to some file with respect to current working directory	**The absolute path is the full path to some place on your computer.**
e.g. Relative path: **"function.py"** **or** **"..\function.py**	**For example: Absolute path:** **C:\Users\hp\Desktop\cs\function.py**

seek() and tell()

seek()	tell()
takes the file pointer to the specified byte position	**it gives current position within file**
Syntax: **seek("no_of_bytes_to_move", "from_where")** **"from_where"- has 3 values** **from=0 -means to move from the beginning of file. It is default also** **from=1 means to move the pointer at the current position** **from=2 means to move pointer at end of file**	**Syntax** **fileobjectname.tell()** **Example:** **f.tell()**

TEXT FILE, BINARY FILE AND CSV FILE.

TEXT FILE	BINARY FILE	CSV FILE
A file whose contents can be viewed using a text editor is called a text file. (.txt)	**A binary file stores the data in the same way as as stored in the memory. (.dat)**	Data is stored in the form of rows and column i.e in tabular form. (.csv)
A text file is simply a sequence of ASCII or Unicode characters.	**Can store different types of data (audio, text,image) in a single file.**	They are plain text files having ASCII/Unicode Characters
EOL (new line character i.e. enter) or internal translation occurs	**No EOL occurs**	Language which support text files will also support csv files.

TEXT FILE AND CSV FILE

TEXT FILE	CSV(COMMA SEPARATED VALUES) FILE
Text files contain text which can be opened by any text editor and there is plain text with no format	**CSV also contain text data but in a format where each line is considered as row/record which has many fields(columns).**
EOL (new line character i.e. enter) or internal translation occurs	**fields are the values separated by a delimiter like , " ' ,"*","/" ,"\n"etc.**
No title is required	**the first record is the title of each field.**
No need to import any module	**csv module must be imported**

'a' AND 'w' MODE

'w'	'a'
'w' Open a file for writing	'a' Open for appending at the end of the file without truncating it.
Creates a new file if it does not exist or truncates the file if it exists.	Creates a new file if it does not exist.

write() and writelines()

write()	writelines()
write() function write a single string at a time	writelines() methods can be used to write a sequence of strings

PICKLING AND UNPICKLING

PICKLING	UNPICKLING
Pickling is the process whereby a Python object is converted into a byte stream.	Unpickling is the process by which a byte stream is converted back into the desired object.

readline() and readlines()

readline()	readlinelines()
The readline() method reads one line(i.e. till newline) at a time from a file and returns that line	The readlines()method reads the entire content of the file in one go and returns **a list of lines** of the entire file.
It reads the file till newline including the newline character.	
The readline() method returns an empty string when the end of file is reached.	This method returns an empty value when an end of file (EOF) is reached.

read() and readline()

read()	readline()
The read() method reads the entire file content of the file in one go	The readline() method reads **one line(i.e. till newline) at a time** from a file
it reads info character by character	It reads the info line by line
	The readline() method returns an empty string when the end of file is reached.

Text file questions	

#lines starting with F
f=open("firewall.txt")
c=0
for i in f.readline():
  if(i=='F'):
  c=c+1
print(c)
	#find no of lines
	f=open("firewall.txt")
	t=f.readlines()
	print(len(t))

#count no of digits
f=open("firewall.txt")
t=f.read()
c=0
for i in t:
  if(i>='0' and i<='9') :
  c=c+1
print(c)
	#count no of alphabets
	f=open("firewall.txt")
	t=f.read()
	c=0
	for i in t:
	  if(i>='a' and i<='z')or(i>='A' and i<='Z') :
	  c=c+1
	print(c)

#find size of file or how many characters in a file
f=open("firewall.txt")
t=f.read()
print(len(t))
	#find how many 'f' and 's' present in a file
	f=open("firewall.txt")
	t=f.read()
	c=0
	d=0
	for i in t:
	  if(i=='f'):
	  c=c+1
	  elif(i=='s'):
	  d=d+1
	print(c,d)

#find how many 'firewall' and 'to' present in a file
f=open("firewall.txt")
t=f.read()
c=0
d=0
for i in t.split():
	#find how many 'firewall' or 'to' present in a file
	f=open("firewall.txt")
	t=f.read()
	c=0
	for i in t.split():
	  if(i=='firewall')or (i=='is'):

```
    if(i=='firewall'):
        c=c+1
    elif(i=='to'):
        d=d+1
print(c,d)
```

```
        c=c+1
print(c)
```

#print 5 lines from file

```
f=open("firewall.txt")
print(f.readlines(5))
```

#display first 3 lines

```
f=open("firewall.txt")
print(f.readline())
print(f.readline())
print(f.readline())

or
f=open("firewall.txt")
for i in range(3):
    print(f.readline())
```

```
f=open("firewall.txt")
print(f.read(20))        #0 to 20 bytes
print(f.read(30))        #next 30 bytes i.e. 21 to 30
                         (upto 50 bytes)
```

Write a program that reads character from the keyboard one by one. All lower case characters get store inside
the file LOWER, all upper case characters get stored inside the file UPPER and all other characters get stored
inside OTHERS.

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

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

```
f=open("hello.txt")
f1=open("lower.txt","a")
f2=open("upper.txt","a")
f3=open("others.txt","a")

r=f.read()

for i in r:
    if(i>='a' and i<='z'):
        f1.write(i)
    elif(i>='A' and i<='Z'):
        f2.write(i)
    else:
        f3.write(i)
f.close()
f1.close()
f2.close()
f3.close()
```

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

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

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

```
f=open("data.txt","r")
d=f.readlines()
print(d)
```

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

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

Write a program in python to display first character of all the lines from the file("data.txt").

```
f=open("data.txt","r")
d=f.readlines()
for i in d:
    print(i[0])
```

Write a program in python to display all the lines from the file("data.txt") with first character in uppercase.

```
f=open("data.txt","r")
d=f.readlines()
for i in d:
      print(i[0].upper+i[1:-1]))
```

Write a program in python to find the number of characters in first line of file ("data.txt")

```
f=open("data.txt",'r')
t=f.readline()
print(len(t))
```

Write a program in python to display last two characters of all the lines from the file("data.txt").

```
f=open("data.txt",'r')
t=f.readlines()
for i in t:
    print(i[-3:])
```

Write a program to read all the characters from the file("data.txt") and display in uppercase.

```
f=open("data.txt",'r')
t=f.read()
print(t.upper())
```

Write a program to count all the upper case characters from the file ("data.txt").

```
f=open("data.txt",'r')
t=f.read()
c=0
for i in t:
    if(i.isupper()):
          c=c+1
print("total uppercase characters",c)
```

Write a program to count number of spaces from the file ("data.txt").

```
f =open("data.txt",'r')
t=f.read()
c=0
for i in t:
    if(i.isspace() and i!='\n'):
        c=c+1
print("total spaces",c)
```

Write a program to count number of vowels in a file ("data.txt").

```
f =open("data.txt",'r')
t=f.read()
c=0
for i in t:
    if(i=='a' or i=='e' or i=='o' or i=='i' or i=='u'):
        c=c+1
print("total spaces",c)
```

Write a function in python to count the number lines in a text file 'Country.txt' which is starting with an alphabet 'W' or 'H'.

```
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, H)
```

Write a user defined function countwords() to display the total number of words present in the file from a text file "Quotes.Txt".

```
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)
```

Write a user defined function countwords() to display the total number of words present in the file from a text file “Quotes.Txt”.

```
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)
```

Write a function COUNT_AND( ) in Python to read the text file “STORY.TXT” and count the number of times “AND” occurs in the file. (include AND/and/And in the counting)

```
def COUNT_AND( ):
    count=0
    file=open(‘STORY.TXT','r')
    line = file.read()
    word = line.split()
    for w in word:
        if w ==’AND’:
            count=count+1
    print(count)
    file.close()
```

Write a function DISPLAYWORDS( ) in python to display the count of words starting with “t” or “T” in a text file ‘STORY.TXT’.

```
def COUNT_AND( ):
    count=0
    file=open(‘STORY.TXT','r')
    line = file.read()
    word = line.split()
    for w in word:
        if w[0] ==’t’ or w[0]==’T’:
            count=count+1
    print(count)
    file.close()
```

Write a function that counts and display the number of 5 letter words in a text file “Sample.txt

```
def count_words( ):
    c = 0
    f = open("Sample.txt")
    line = f.read()
    word = line.split()
    for w in word:
        if len(w) == 5:
            c += 1
    print(c)
```

Write a function that counts and display the number of 5 letter words in a text file “Sample.txt

```
def count_words( ):
    c = 0
    f = open("Sample.txt")
    line = f.read()
    word = line.split()
    for w in word:
        if len(w) == 5:
            c += 1
    print(c)
```

Write a function that counts and display the number of 5 letter words in a text file “Sample.txt

```
def count_words( ):
    c = 0
    f = open("Sample.txt")
    line = f.read()
    word = line.split()
    for w in word:
        if len(w) == 5:
            c += 1
    print(c)
```

Write a function that counts and display the number of 5 letter words in a text file “Sample.txt

```
def count_words( ):
    c = 0
    f = open("Sample.txt")
    line = f.read()
    word = line.split()
    for w in word:
        if len(w) == 5:
            c += 1
    print(c)
    f.close()
```

Write a function to display those lines which start with the letter “G” from the text file “MyNotes.txt”

```
def count_lines( ):
    c = 0
    f = open("MyNotes.txt")
    line = f.readlines()
    for w in line:
        if w[0] == 'G':
            print(w)
    f.close()
```

Write a function in python to read lines from file "POEM.txt" and display all those words, which has two characters in it.

```
def TwoCharWord():
    f = open('poem.txt')
    count = 0
    for line in f:
        words = line.split()
        for w in words:
            if len(w)==2:
                print(w,end=' ')
    f.close()
```

Write a function COUNT() in Python to read contents from file "REPEATED.TXT", to count and display the occurrence of the word "Catholic" or "mother".

```
def COUNT():
    f = open('REPEATED.txt')
    count = 0
    for line in f:
        words = line.split()
        for w in words:
            if w.lower()=='catholic' or w.lower()=='mother':
                count+=1
    print('Count of Catholic,mother is',count)
```

Write a method/function COUNTLINES_ET() in python to read lines from a text file REPORT.TXT, and COUNT those lines which are starting either with 'E' and starting with 'T' respectively. And display the Total count separately.

```
def COUNTLINES_ET():
    f=open("REPORT.TXT")
    d=f.readlines()
    le=0
    lt=0
    for i in d:
        if i[0]=='E:
            le=le+1
        elif i[0]=='T':
            lt=lt+1
    print("no of line start with",le)
    print("no of line start with",lt)
```

Write a method/function SHOW_TODO() in python to read contents from a text file ABC.TXT and display those lines which have occurrence of the word ''TO'' or ''DO''.

```
def SHOW_TODO():
    f=open("ABC.TXT")
    d=f.readlines()
    for i in d:
        if "TO" in i or "DO" in i:
            print(i)
    f.close()
```

Write a function in Python that counts the number of "Me" or "My" words present in a text file "STORY.TXT".

```
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
    print("Count of Me/My in file:",num)
    f.close()
```

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).

```
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
    print("A or a: ",A)
    f.close()
```

Write a function in python that displays the number of lines starting with 'H' in the file "para.txt".

```
def countH():
    f=open("para.txt","r")
```

Write a function countmy() in Python to read file Data.txt and count the number of times "my" occur in file.

```
def countmy():
    f=open("Data.txt","r")
```

```
        lines=0
        l=f.readlines()
        for i in l:
            if i[0]='H':
                lines+=1
        print("NO of lines are:",lines)
        f.close()
```

```
        count=0
        x=f.read()
        word=x.split()
        for i in word:
            if i ==”my” :
                count=count+1
        print(“my occurs “, count, “times”)
```

Write a Python program to find the number of lines in a text file ‘abc.txt’.

```
f=open("abc.txt","r")
d=f.readlines()
count=len(d)
print(count)
f.close()
```

Write a Python program to count the word “if “ in a text file abc.txt’.

```
file=open("abc.txt","r")
c=0
line = file.read()
word = line.split()
for w in word:
        if w=='if':
            print( w)
            c=c+1
print(c)
file.close()
```

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

```
def countp():
        f=open("diary.txt","r")
        lines=0
        l=f.readlines()
        for i in l:
            if i[0]='P':
                lines+=1
        print("No of lines are:",lines)
```

Write a method/function ISTOUPCOUNT() in python to read contents from a text file WRITER.TXT, to count and display the occurrence of the word ‘‘IS’’ or ‘‘TO’’ or ‘‘UP’’

```
def ISTOUPCOUNT():
        c=0
       file=open('sample.txt','r')
       line = file.read()
      word = line.split()
      cnt=0
      for w in word:
           if w=='TO' or w=='UP' or w=='IS':
                   cnt+=1
      print(cnt)
     file.close()
```

Write a code in Python that counts the number of “The” or “This” words present in a text file “MY_TEXT_FILE.TXT”.

```
c = 0
f=open('MY_TEXT_FILE.TXT', 'r') :
d=f.read()
w=d.split()
for i in w:
        if i.upper()== 'THE' or i.upper()== 'THIS' :
            c+=1
print(c)
```

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.

```
def VowelCount():
  count_a=count_e=count_i=count_o=count_u=0
  f= open('MY_TEXT_FILE.TXT', 'r')
  d=f.read()
  for i in d:
              if i.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)
```

Write a function filter(oldfile, newfile) that copies all the lines of a text file “source.txt” onto “target.txt” except those lines which starts with “@” sign.

```
def filter(oldfile, newfile):
    f1 = open("oldfile","r")
    f2 = open(“newfile”,”w”)
    while True:
        text= f1.readline()
        if len(text) ==0:
            break
        if text[0] == ‘@’:
            continue
        f2.write(text)
    f1.close()
    f2.close()
```

Binary file—pickle module (to write - dump () and to read- load())

Write a definition for function Itemadd () to insert record into the binary file ITEMS.DAT, (items.dat- id,gift,cost). info should stored in the form of list.

```
'''
#Sol :
import pickle
def itemadd ():
  f=open("items.dat","wb")
  n=int(input("enter how many records"))
  for i in range(n):
    r=int(input('enter id'))
    n=input("enter gift name")
    p=float(input("enter cost"))
    v=[r,n,p]
    pickle.dump(v,f)
  f.close()
```

Write a definition for function SHOWINFO() to read each record of a binary file ITEMS.DAT, (items.dat- id,gift,cost).Assume that info is stored in the form of list

```
'''
#Sol:
import pickle
def SHOWINFO():
  f=open("items.dat","rb")
  while True:
    try:
      g=pickle.load(f)
      print(g)
    except:
      break
  f.close()
```

Write a definition for function COSTLY() to read each record of a binary file ITEMS.DAT, find ,count and display those items, which are priced less than 50. (items.dat- id,gift,cost).Assume that info is stored in the form of list

```
'''
#sol
```

Write a definition for function COSTLY() to read each record of a binary file ITEMS.DAT, find and display those items, which are priced between 50 to 60. (items.dat- id,gift,cost).Assume that info is stored in the form of list

```
'''
#sol
```

```
def COSTLY():
    f=open("items.dat","rb")
    c=0
    while True:
        try:
            r=pickle.load(f)
            if(r[2]<50):
                c=c+1
                print(r)
        except:
            break
    print(c)
    f.close()
```

```
def COSTLY():
    f=open("items.dat","rb")
    while True:
        try:
            r=pickle.load(f)
            if(r[2]>=50 and r[2]<=60):
                print(r)
        except:
            break
    f.close()
```

'''
Write a function for function to SEARCH()for a item from a binary file "items.dat"
The user should enter the itemno and function should search and
display the detail of items.(items.dat- id,gift,cost).
Assume that info is stored in the form of list
'''

```
import pickle
def SEARCH():
    f=open("items.dat","rb")
    n=int(input("enter itemno which u want to search"))
    while True:
        try:
            r=pickle.load(f)
            if(r[0]==n):
                print(r)
        except:
            break
    f.close()
```

'''
Write a function in to search and display details of all flights, whose
destination is “Mumbai” from a binary file “FLIGHT.DAT”.
(flight.dat- fno,from (starting point), to (destination)).
Assume that info is stored in the form of list
'''

```
import pickle
def FUN():
    f=open("FLIGHT.DAT","rb")

    while True:
        try:
            r=pickle.load(f)
            if(r[2]=="Mumbai"):
                print(r)
        except:
            break
    f.close()
```

'''
Write a definition for function UPDATEINFO() from binary file
ITEMS.DAT. The user should enter the item name and function should search and
update the entered itemno info
(items.dat- id,gift,cost).
Assume that info is stored in the form of list
'''

```
import pickle
import os
def UPDATEINFO():
    f=open("items.dat","rb")
    f2=open("temp.dat","wb")
    s=[]
    a=input("enter item name which we want to update")
    while True:
        try:
            r=pickle.load(f)
```

'''
Write a function in that would read the contents from the file GAME.DAT and
creates a file named BASKET.DAT copying only those records from GAME.DAT where
the game name is “BasketBall”.(game.dat - gamename, participants).
Assume that info is stored in the form of list
'''

```
import pickle
def fun():
    f=open("GAME.DAT","rb")
    f1=open("BASKET.DAT","wb")
    while True:
        try:
            r=pickle.load(f)
            if(r[0]=="BasketBall"):
                pickle.dump(r,f1)
        except:
            break
```

```
        if(r[1]==a):
            r[0]=int(input("enter new item id"))
            r[1]=input("enter item name")
            r[2]=int(input("enter cost of item"))
            s.append(r)
      except:
         break
   pickle.dump(s,f2)
   f.close()
   f2.close()
   os.remove("items.dat")
   os.rename("temp.dat","items.dat")
```

```
   print(c)
   f.close()
   f1.close()
```

A binary file "student.dat" has structure [rollno, name, marks].

i. Write a user defined function insertRec() to input data for a student and add to student.dat.

ii. Write a function searchRollNo(r) in Python which accepts the student's rollno as parameter and searches the record in the file "student.dat" and shows the details of student i.e. rollno, name and marks (if found) otherwise shows the message as 'No record found'.

(i)

```
import pickle
def insertRec():
        f=open("student.dat","ab")
        rollno = int (input("Enter Roll Number : "))
        name=input("Enter Name :")
        marks = int(input("Enter Marks : "))
        rec = [rollno, name, marks ]
        pickle.dump( rec, f )
        f.close()
```

(ii)

```
def searchRollNo( r ):
        f=open("student.dat","rb")
        flag = False
      while True:
                  try:
                     rec=pickle.load(f)
                     if rec[0] == r :
                           print(rec['Rollno'])
                           print(rec['Name'])
                           print(rec['Marks])
                           flag == True
                   except EOFError:
                       break
          if flag == False:
                print("No record Found")
      f.close()
```

A binary file "emp.dat" has structure [EID, Ename, designation, salary].

i. Write a user defined function CreateEmp() to input data for a record and create a file emp.dat.

ii. Write a function display() in Python to display the detail of all employees whose salary is more than 50000.

(i)

```
import pickle
def CreateEmp():
        f1=open("emp.dat",'wb')
        eid=input("Enter E. Id")
        ename=input("Enter Name")
        designation=input("Enter Designation")
        salary=int(input("Enter Salary"))
        l=[eid,ename,designation,salary]
        pickle.dump(l,f1)
        f1.close()
```

(ii)

```
import pickle
def display():
      f2=open("emp.dat","rb")
      try:
         while True:
            rec=pickle.load(f2)
            if rec[3]>5000:
                  print(rec[0],rec[1],rec[2],rec[3])
      except:
         f2.close()
```

Write a python program to append a new records in a binary file –"student.dat". The record can have Rollno, Name and Marks.

```
import pickle
while True:
        rollno = int(input("Enter your rollno: "))
        name = input("Enter your name: ")
        marks = int(input("enter marks obtained: "))
        d = [rollno, name, marks]
        f1 = open("Student.dat", "wb")
        pickle.dump(d, f1)
        choice = input("enter more records: y/n")
         if choice== "N":
               break
         f1.close()
```

Write a python program to search and display the record of the student from a binary file "Student.dat" containing students records (Rollno, Name and Marks). Roll number of the student to be searched will be entered by the user.

```
import pickle
f1 = open("Student.dat", "rb")
rno = int(input("Enter the roll no to search: "))
flag = 0
try:
    while True:
          r = pickle.load(f1)
          if rno == r[0]:
                print (rollno, name, marks)
                flag = 1
except:
      if flag == 0:
          print("Record not found…")
f1.close()
```

i. A binary file "emp.DAT" has structure (EID, Ename, designation,salary). Write a function to add more records of employes in existing file emp.dat.

ii. Write a function Show() in Python that would read detail of employee from file "emp.dat" and display the details of those employee whose designation is "Salesman".

(i)

```
import pickle
def createemp:
     f1=open("emp.dat",'ab')
     eid=input("Enter E. Id")
     ename=input("Enter Name")
     designation=input("Enter Designation")
     salary=int(input("Enter Salary"))
     l=[eid,ename,designation,salary]
     pickle.dump(l,f1)
     f1.close()
```

(ii)

```
def display():
        f2=open("emp.dat","rb")
        try:
            while True:
                rec=pickle.load(f2)
                if (rec[2]=='Manager'):
                      print(rec[0],rec[1], rec[2],rec[3])
         except:
               break
       f2.close()
```

A binary file named "EMP.dat" has some records of the structure [EmpNo, EName, Post, Salary]

(a) Create a binary file "EMP.dat" that stores the records of employees and display them one by one.

(b) Display the records of all those employees who are getting salaries between 25000 to 30000.

(a)

```
import pickle
f1 = open('emp.dat','rb')
try:
        while True:
                e = pickle.load(f1)
                print(e)
except:
          f1.close()
```

(b)

```
import pickle
f1 = open('emp.dat','rb')
try:
        while True:
                e = pickle.load(f1)
                if(e[3]>=25000 and e[3]<=30000):
                        print(e)
except:
          f1.close()
```

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”

(i)

```
import pickle
def createFile():
        f=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,f)
       f.close()
```

(ii)

```
def CountRec(Author):
        f=open("Book.dat","rb")
        num = 0
        try:
            while True:
                rec=pickle.load(f)
                if Author==rec[2]:
                        num = num + 1
       except:
            f.close()
       return num
```

A binary file student.dat has structure (rollno,name,class,percentage). Write a program to updating a record in the file requires roll number to be fetched from the user whose name is to be updated

```
import pickle
import os
f1 = open(‘student.dat','rb')
f2=open(“temp.dat”,”wb”)
r=int(input(“enter rollno which you want to search”))
try:
       while True:
                e = pickle.load(f1)
                if e[0]==r:
                     e[1]=input(“enter name”)
                     pickle.dump(e,f2)
                else:
                     pickle.dump(e,f2)
except:
        f1.close()
```

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

```
        f2.close()
os.remove("student.dat")
os.rename("temp.dat","student,dat")
```

A binary file named "EMP.dat" has some records of the structure [EmpNo, EName, Post, Salary]
(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.

(a)

```
import pickle
def NewEmp ( ):
        f = open("EMP.dat","wb")
        EmpNo = int(input("Enter employee number: "))
        EName = input("Enter name:")
        Post = input("Enter post:")
        Salary = int(input("Enter salary"))
        rec = [EmpNo, Ename, Post,Salary]
        pickle.dump(rec, f)
        f.close()
```

(b)

```
def SumSalary(Post):
    f = open("EMP.dat", "rb")
    c=0
    while True:
        try:
            g = p.load(f)
            if g[2]==Post:
                c=c+g[3]
        except:
            f.close()
      print("sum of salary", c)
```

A binary file "Items.dat" has structure as [Code, Description, Price].
i. Write a user defined function MakeFile( ) to input multiple items from the user and add to Items.dat
ii. Write a function SearchRec(Code) in Python which will accept the code as parameter and search and display the details of the corresponding code on screen from Items.dat.

(i)

```
import pickle
def MakeFile( ):
    while True:
        code = input("Enter Item Code :")
        desc = input("Enter description :")
        price = float(input("Enter price:"))
        d= [code,desc,price]
        f = open ("Items.dat", "ab")
        pickle.dump( d,f )
        ch = input("Add more record? (y/n) :")
        if ch=='n':
            break
    f.close( )
```

(ii)

```
def SearchRec(code):
    f = open("Items.dat", "rb")
    found = False
    while True:
        try:
            g = p.load(f)
            if g[0]==code:
                print(g[0],g[1],g[2])
                found=True
                break
        except:
            if found == False:
                print("No such record")
            f.close()
```

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.

```
def SumSalary(Sub):
    f = open("ABC.dat", "rb")
    c=0
```

Consider a binary file emp.dat having records in the form of dictionary. E.g {eno:1, name:"Rahul", sal: 5000} write a python function to display the records of above file for those employees who get salary between 25000 and 30000

```
import pickle
def search():
    f=open("emp.dat","rb")
```

```
s=0
while True:
    try:
        g = p.load(f)
        print(g)
        if g[1]==Sub:
            s=s+g[3]
            c=c+1
    except:
        f.close()
print("sum of salary", s/c)
f.close()
```

```
while True:
    try:
        d=pickle.load(f)
        if(d['sal']>=25000 and  d['sal']<=30000):
            print(d)
    except EOFError:
        break
f.close()
```

A binary file "Bank.dat" has structure as [account_no, cust_name, balance].

i. Write a user-defined function addfile( ) and add a record to Bank.dat.

ii. Create a user-defined function CountRec( ) to count and return the number of customers whose balance amount is more than 100000.

(i)

```
import pickle
def addfile( ):
    f = open("bank.dat","wb")
    acc_no = int(input("Enter account number: "))
    cust_name = input("Enter name:")
    bal = int(input("Enter balance"))
    rec = [acc_no, cust_name, bal]
    p.dump(rec, f)
    f.close()
```

(ii)

```
def CountRec( ):
    f = open("bank.dat","rb")
    c = 0
    try:
        while True:
            rec = p.load(f)
            if rec[2] > 100000:
                c += 1
    except:
        f.close()
    return c
```

Consider an employee data, Empcode, empname and salary.

(i) Write python function to create binary file emp.dat and store their records.

(ii) write function to read and display all the records

Ans

```
import pickle
def add_record():
    f = open("emp.dat","ab")
    empcode =int(input("employee code:"))
    empname = int(input("empName:"))
    salary = int(input("salary:"))
    d = [empcode, empname, salary]
    pickle.dump(d,f)
    f.close()
import pickle

def search():
    f=open("emp.dat","rb")
    while True:
        try:
            d=pickle.load(f)
            print(d)
        except EOFError:
            break
    f.close()
```

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

```
def SCOUNT( ):
    s=' '
    count=0
    f=open('Names.dat', 'rb'):
    while True:
        s = f.read(20)
        if len(s)!=0:
            if s[0].lower()=='s':
```

Given a binary file "emp.dat" has structure (Emp_id, Emp_name, 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

```
import pickle
def countsal():
    f = open ("emp.dat", "rb")
    n = 0
    try:
        while True:
```

```
            count+=1
        print('names beginning from "S" are ',count)
```

```
                rec = pickle.load(f)
                 if rec[2] > 20000:
                      print(rec[0], rec[1], rec[2])
                       n = n + 1
            except:
                print(n)
                f.close()
```

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

```
import csv
def DISPEMP():
    csvfile=open('emp.csv'):
    myreader = csv.reader(csvfile,delimiter=',')
    print(EMPNO,EMP NAME,SALARY)
    for row in myreader:
          if int(row[2])>4000:
               print(row[0], row[1],row[2])
```

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

```
import csv
def DISPEMP():
    csvfile=open('emp.csv'):
    myreader = csv.reader(csvfile,delimiter=',')
    print(EMPNO,EMP NAME,SALARY)
    for row in myreader:
          if int(row[2])>4000:
               print(row[0], row[1],row[2])
```

A binary file “Stu.dat” has structure (rollno, name, marks).
Write a function in Python add_record() to input data for a record and add to Stu.dat.

```
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()
```

A binary file “Stu.dat” has structure (rollno, name, marks).
Write a function in python Search_record() to search a record from binary file “Stu.dat” on the basis of roll number.

```
def Search_record():
     f = open(“Stu.dat”, “rb”)
     stu_rec = pickle.load(f)
     found = 0
     rno = int(input(“roll number to search:”))
    try:
        for R in stu_rec:
            if R[0] == rno:
               print (R[1], “Found!”)
               found = 1
               break
     except:
        if found == 0:
            print (“Sorry, record not found:”)
        f.close()
```

CSV-
#import csv #csv module
#csv module functions----csv.reader() ,csv.writer()
#writerow()-single record,
#writerows()-multiple records

'''
write a python function writecsv () to write the following information into
product.csv.

pid,pname,cost,quantity
p1,brush,50,200
p2,toothbrush,120,150
p3,comb,40,300
p4,sheets,100,500
p5,pen,10,250
'''
#solution----------

```
def writecsv():
   f=open("product.csv","w")
   r=csv.writer(f,lineterminator='\n')
   r.writerow(['pid','pname','cost','qty'])
   r.writerow(['p1','brush','50','200'])
   r.writerow(['p2','toothbrush','12','150'])
   r.writerow(['p3','comb','40','300'])
   r.writerow(['p5','pen','10','250'])
   f.close()
```

'''
write a python function writecsv () to write the following information into product.csv.Heading of the product .csv is as follows

pid,pname,cost,quantity
'''

```
def writecsv(pid,pname,cost,quantity):
    f=open("marks.csv","w")
    r=csv.writer(f,newline="")
    r.writerow([pid,pname,cost,quantity])
    f.close()
```

write a python function readcsv () to display the following information into
product.csv. assume that following info is already present in the file.

pid,pname,cost,quantity
p1,brush,50,200
p2,toothbrush,120,150
p3,comb,40,300
p4,sheets,100,500
p5,pen,10,250
Ans

```
import csv
def readcsv():
   f=open("product.csv","r")
   r=csv.reader(f)
   for i in r:
      print(i)
   f.close()
```

write a python function readcsv () to display the following information into
product.csv. assume that following info is already present in the file.

pid,pname,cost,quantity
p1,brush,50,200
p2,toothbrush,120,150
p3,comb,40,300
p4,sheets,100,500
p5,pen,10,250
Ans

```
import csv
def readcsv():
   f=open("product.csv","r")
   r=csv.reader(f)
   for i in r:
      print(i[0],i[1],i[2],i[3])
   f.close()
```

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','Prerna','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
        emplid=(input("Enter employee id to search="))
        for row in csv_r:
            if len(row)!=0:
                if _____==emplid: #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.
(b) Write a code to write the fields (column heading) once from fields list in Line2.
(c) Write a code to write the rows all at once from rows list in Line3.
(d) Fill in the blank in Line4 to read the data from a csv file.
(e) Fill in the blank to match the employee id entered by the user with the empid of record from a file in Line5.

Ans:
a) csv

b) writerow(fields)

c) writerows(rows)

d) csv.reader

e) row[0]

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 SNAMES():
    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
(b) In which mode, Priti should open the file to print data.

Ans
(a) csv

(b) read mode
(c) 'emp.csv'

(d) reader

(e)
2,Scott,4000

(c) Fill in the blank in Line 2 to open the file. (d) Fill in the blank in Line3 to read the data from a csv file. (e) Write the output he will obtain while executing the above program.	5,Sam,4200 Number of “S” names are 2/5

Anuj Kumar of class 12 is writing a program to create a CSV file “user.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(' user.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(' user.csv','r') as newFile:
newFileReader = csv._____(newFile) # Line 3
for row in newFileReader:
print (row[0],row[1])
newFile._____ # Line 4
addCsvFile(“Arjun”,”123@456”)
addCsvFile(“Arunima”,”aru@nima”)
addCsvFile(“Frieda”,”myname@FRD”)
readCsvFile() #Line 5
 	
(a) Name the module he should import in Line 1.
(b) In which mode, Anuj should open the file to add data into the file
(c) Fill in the blank in Line 3 to read the data from a csv file.
(d) Fill in the blank in Line 4 to close the file.
(e) Write the output he will obtain while executing Line 5.
	Ans
	(a) Line 1 : csv
	(b) Line 2 : a
	(c) Line 3 : reader
	(d) Line 4 : close()
	(e) Line 5 :
	Arjun 123@456
	Arunima aru@nima
	Frieda myname@FRD

Krishna of class 12 is writing a program to read the details of Sports performance and store in the csv file “Sports.csv” delimited with a tab character. As a programmer, help him to achieve the task.
import _____ # Line 1
f = open(“Sports.csv”,”a”)
wobj = csv._____ (f, delimiter = ‘\t’) # Line 2
wobj.writerow([‘Sport’, ‘Competitions’, ‘Prizes Won’])
ans = ‘y’
i = 1
while ans == ‘y’:
print(“Record :”, i)
sport = input(“Sport Name :”)
comp = int(input(“No. of competitions participated :”))
prize = int(input(“Prizes won:”))
record = _____ # Line 3
	Ans
	a)Line 1 : csv
	
	b) Line 2 : writer
	
	c) Line 3 : [sport, comp, prize]

wobj._____ (rec) # Line 4 i += 1 ans = input("Do u want to continue ? (y/n) :") f._____ # Line 5 a) Name the module he should import in Line 1 b) To create an object to enable to write in the csv file in Line 2 c) To create a sequence of user data in Line 3 d) To write a record onto the writer object in Line 4 e) Fill in the blank in Line 5 to close the file.	d) Line 4 : writerow e) close( )

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

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
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:
	Ans
	
	(a) Line 1 : csv
	
	(b) Line 2 : a

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 (a) Give Name of the module he should import in Line 1. (b) In which mode, Aman should open the file to add data into the file (c) Fill in the blank in Line 3 to read the data from a csv file. (d) Fill in the blank in Line 4 to close the file. (e) Write the output he will obtain while executing Line 5.	(c) Line 3 : reader (d) Line 4 : close() (e) Line 5 : Aman 123@456 Anis aru@nima Raju myname@FRD

Parth Patel of class 12 is writing a program to create a CSV file “emp.csv” which will contain employee code and name of some employees. He has written the following code. As a programmer, help him to successfully execute the given task.
import _____#Line 1
def addemp(empcode,name):#to write/add data into the CSV file
fo=open('emp.csv','a')
writer=csv._____ (fo) #Line 2
writer.writerow([empcode,name])
fo.close() #csv file reading code
def reademp():
with open('emp.csv',' ___') as fin: #Line 3
filereader=csv.reader(fin)
for row in filereader:
for data in row:
print(data,end='\t')
print(end='\n')
fin._____ #Line 4
addemp('E105','Parth')
addemp("E101",'Arunima')
addemp("E102",'Prahalad')
reademp() #Line 5
 	
(a) Name the module he should import in Line 1.
(b) Fill in the blank in Line 2 to write the data in a CSV file.
(c) In which mode, Parth should open the file to read the data from the file(Line 3).
(d) Fill in the blank in Line 4 to close the file.
(e) Write the output he will obtain while executing Line 5.
	Ans
	(a) LINE 1 : csv
	
	(b) LINE 2 : writer
	
	(c) LINE 3: r
	
	(d) LINE 4: close()
	
	(e)
	E105 Parth
	E101 Arunima
	E102 Prahalad

MOHIT of class 12 is writing a program to search a name in a CSV file “MYFILE.csv”. He has written the following code. As a programmer, help him to successfully execute the given task.
 	
import _____ # Statement 1
f = open("MYFILE.csv", _____) # Statement 2
data = _____ (f) # Statement 3
	Ans
	
	(a) csv
	(b) “r”
	(c) data = csv.reader(f)

nm = input("Enter name to be searched: ")
for rec in data:
  if rec[0] == nm:
  print (rec) f._____( ) # Statement 4
 	
(a) Name the module he should import in Statement 1.
(b) In which mode, MOHIT should open the file to search the data in the file in statement 2?
(c) Fill in the blank in Statement 3 to read the data from the file.
(d) Fill in the blank in Statement 4 to close the file.
(e) Write the full form of CSV.
	(d) f.close()
	
	(e) Comma Separated Values

DATA STRUCTURE

'''
A linear stack called "List" contain the following information:
a. Roll Number of student
b. Name of student
Write add(List) and pop(List) methods in python to add and remove from the stack.
Ans.
'''
List=[]
def add(List):
  rno=int(input("Enter roll number"))
  name=input("Enter name")
  item=[rno,name]
  List.append(item)
 	
def pop(List):
  if len(List)>0:
  List.pop()
  else:
  print("Stack is empty")
	'''
	Write push(edetail) and pop(edetail) in python to add and remove the employee detail in a stack called "edetail".
	"edetail" stack store the following details:
	a. Name of employee
	b. Salary of employee
	Ans.
	'''
	edetail = []
	def push(edetail):
	  name = input("Enter name")
	  sal = int(input("Enter Salary"))
	  item = [name, sal]
	  edetail.append(item)
	
	def pop(edetail):
	  if len(edetail) > 0:
	  edetail.pop()
	  else:
	  print("Stack is empty")

'''
Write addsal(sal) and removesal(sal) functions in python to add and remove salary from a list of salary in a list "sal", considering these methods to act as push and pop operations of data structure stack.
Ans.
'''
sal = []
def addsal(sc):
  sal.append(sc)
 	
def pop():
  if len(sal) > 0:
  sal.pop()
  else:
  print("Stack is empty")
	Write a function Push() which takes "name" as argument and add in a stack named "MyStack". After calling push() three times, a message should be displayed "Stack is Full"
	Ans.
	'''
	MyStack=[]
	StackSize=3
	def Push(Value):
	  if len(MyStack) < StackSize:
	  MyStack.append(Value)
	  else:
	  print("Stack is full!")

'''	'''

Write a function Push that takes "name" as argument and add in a stack named "MyStack"

```
Mynames=[]
def Push(Value):
    Mynames.append(Value)
```

Write a function pop() which remove name from stack named "MyStack".

```
'''
def Pop(MyStack):
    if len(MyStack) > 0:
        MyStack.pop()
    else:
        print("Stack is empty.")
```

Write add(bookname) and delete() method in python to add bookname and remove bookname considering
them to act as push() and pop() operations in stack.

```
'''
MyStack=[]
def add(bname):
    MyStack.append(bname)

def delete(MyStack):
    if len(MyStack) > 0:
            MyStack.pop()
 else:
     print("Stack is empty. There is no book name")
```

Write add(no) and delete() method in python to add no and remove no considering
them to act as enqueue () and dequeue() operations in queue.

```
qe=[]
def Enqueue(no): #inserting into the queue
        qe.append(no)


def dequeue():
    if(qe==[]):
        print("underflow/empty queue")
    else:
        qe.pop(0)
```

Q1. Organization of data means _____.
Q2. Write the full form of the following:
a. LIFO
b. FIFO
Q3. Which data structure is represented as FIFO?
Q4. Insertion into stack is called _____ (push/pop)
Q5. Giving printing command to printer is an example of _____
(stack/queue)
Q6. Reversing a number or a word/string is an example of
_____(stack or queue)
Q7. In stack addition or removal of elements takes place at ___
(one/both) end of the list.
Q8. In queue, addition of elements take place at one end and
removal of elements takes place at other end. (T/F)
Q9. If the elements "A", "B", "C" are added in the queue in the
following order,
first A then B and in last C.
In what order, it will come out of
queue?
Q10. _____ function is used to add an element in stack.

Ans 1. Data Structure
Ans 2.
a. Last In First Out
b. First In First Out
Ans 3. Queue
Ans 4. Push
Ans 5. Queue
Ans 6. Stack
Ans 7. One
Ans 8. True
Ans 9. A, B, C
Ans 10. Append

Write a function AddCustomer(Customer) in Python to add a new Customer information NAME into the List of CStack and display the information.

```
CStack=[]
```

Write a function DeleteCustomer() to delete a Customer information from a list of CStack. The function delete the name of customer from the stack.

```
CStack=[]
```

```
def AddCustomer(Customer):
        CStack.append(Customer)
        if len(CStack)==0:
            print (“Empty Stack”)
        else:
            print (CStack)
```

```
def DeleteCustomer():
    if (CStack ==[]):
        print(“There is no Customer!”)
    else:
        print(“Record deleted:”,CStack.pop())
```

Write A Function Python, MakePush(Package) and MakePop (Package) to add a new Package and delete a Package form a List Package Description, considering them to act as push and pop operations of the Stack data structure.

```
def MakePush(Package):
    a=int(input("enter package title:"))
    Package.append(a)

def MakePop(Package):
    if(Package==[]):
        print("Stack empty")
    else:
        print("Deleted element:",Package.pop())
```

Write InsQueue(Passenger) and DelQueue(Passenger) methods/function in Python to add a new Passenger and delete a Passenger from a list ‘names’ , considering them to act as insert and delete operations of the Queue data structure.

```
def InsQueue (Passenger):
    a=int(input("enter passenger name:"))
    Passenger.append(a)

def DelQueue (Passenger):
    if(Passenger ==[]):
        print("queue empty")
    else:
        print(Passenger.pop(0))
```

Write AddCustomer(Customer) method in Python to add a new customer, considering it to act as a PUSH operation of the stack datastructure. Also display the contents of the Stack after PUSH operation. Details of the Customer are : CID and Name.

```
def AddCustomer(Customer):
    cid = int(input(“Enter customer id:”))
    Name = input(“Enter customer name:”))
    Customer.append ( [cid,Name] )
```

Write RemoveCustomer(Customer) method in Python to remove a Customer, considering it to act as a POP operation of the stack datastructure. Also return the value deleted from stack.

```
def RemoveCustomer(Customer):
    if Customer == [ ]:
        print(“Underflow”)
    else:
        p = Customer.pop( )
    return p
```

Write a function in python named PUSH(STACK, SET) where STACK is list of some numbers forming a stack and SET is a list of some numbers. The function will push all the EVEN elements from the SET into a STACK implemented by using a list. Display the stack after push operation.

```
def PUSH(STACK,SET):
    for i in SET:
        if i%2==0:
            STACK.append(i)
    print(STACK)
```

Write a function in python named POP(STACK) where STACK is a stack implemented by a list of numbers. The function will display the popped element after function call.

```
def POP(STACK):
    if STACK==[]:
        print(“underflow”)
    else:
        print(STACK.pop())
```

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.

```
def PUSH(Arr,value):
```

Write a function in Python POP(Arr), where Arr is a stack implemented by a list of numbers. The function returns the value deleted from the stack.

```
def popStack(st) :
    if len(st)==0:
```

```
    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)
```

```
            print("Underflow")
        else:
            print(st.pop())
```

Write a function in Python PUSH (Lst), where Lst is a list of numbers. From this list push all numbers not divisible by 6 into a stack implemented by using a list. Display the stack if it has at least one element, otherwise display appropriate error message.

```
def PUSH(Arr,value):
    s=[]
    for x in range(0,len(Arr)):
        if Arr[x]%6!=0:
            s.append(Arr[x])
        if len(s)==0:
            print("Empty Stack")
        else:
            print(s)
```

Write a function in python, PushEl(e) to add a new element and PopEl(e) to delete a element from a List ,considering them to act as push and pop operations of the Stack data structure .

```
def PushEl(element):
        a=int(input("enter package title : "))
        element.append(a)

def PopEl(element):
        if (element==[]):
            print( "Stack empty")
        else:
            print (element.pop())
```

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

```
def InsertQ(queue):
        a=input("Enter customer name :")
        queue.append(a)

def DeleteQ(queue):
        if (queue==[]):
            print ("Queue is empty.....")
        else:
            print(queue.pop(0))
```

Write a function DELQ(Customer) in Python to delete a Customer from a Queue implemented using list.

```
def DELQ(queue):
        if (queue == []):
            print ("Queue is empty.....")
        else:
            print(queue.pop(0))
```

Write a function POP(Book) in Python to delete a Book from a list of Book titles, considering it to act as a pop operation of the Stack data structure.

```
def POP(Book):
        if (Book ==[]):
            print("Stack empty")
        else:
            print(Book.pop())
```

Write a function in Python PushBook(Book) to add a new book entry as book_no and book_title in the list of Books , considering it to act as push operations of the Stack data structure.

```
def PushBook(Book):
        bno = input("enter book no : ")
        btitle = input("enter book title:")
        rec = [bno , btitle]
        Book.append(rec)
        print(Book)
```

MySQL

Data types of SQL- Following are the most common data types of SQL.

NUMBER / INTEGER	CHAR	VARCHAR	DATE	DECIMAL

DDL	DML
Data definition language	Data manipulation language
Create Drop Alter	Insert Update Delete Select

Creating a Database-To create a database in RDBMS, create command is used.
Syntax,
create database database-name;
Example
create database Test;
---------- 	
CREATE TABLE Command: Create table command is used to create a table in SQL.
Syntax :
CREATE TABLE tablename
(column_name data_type(size),
column_name2 data_type(size)….
);
 	
e.g. create table student (rollno integer(2), name char(20), dob date);
 	
Alter command is used for alteration of table structures. Various uses of alter command, such as,
• to add a column to existing table
• to rename any existing column
• to change datatype of any column or to modify its size.
• alter is also used to drop a column.
 	
Example:
ALTER command- Add Column to existing Table
Using alter command we can add a column to an existing table.
Syntax,
alter table table-name add(column-name datatype);
e.g.
alter table Student add(address char);
	INSERT Statement -To insert a new tuple(row or record) into a table is to use the insert statement
	(i) To insert records into specific columns
	Syntax:
	insert into table_name(column_name1, column_name2…)values (value1,value2….);
	
	e.g. INSERT INTO student (rollno,name)VALUES(101,'Rohan');
	
	(ii) **insert records in all the columns**
	insert into table_name values(value1,value2……);
	
	e.g.INSERT INTO student (VALUES(101,'Rohan','XI',400,'Jammu');
	---------- 	
	Update command –it is used to update a row of a table. syntax,
	UPDATE table-name set column-name = value where condition;
	e.g.
	UPDATE Student set s_name='Abhi',age=17 where s_id=103;
	---------- 	
	Delete command
	It is used to delete data(record) from a table.It can also be used with condition to delete a particular row.
	(i) syntax:- **to Delete all Records from a Table**
	DELETE from table-name;
	Example
	DELETE from Student;

ALTER command-To Modify an existing Column

alter command is used to modify data type of an existing column .

Syntax:-

alter table table-name modify(column-name datatype);

e.g.

alter table Student modify(address varchar(30));

ALTER command- To Rename a column

Using alter command you can rename an existing column.

Syntax:-

alter table table-name change old-column-name new_ column-name;

e.g.

alter table Student change address Location;

The above command will rename address column to Location.

ALTER command -To Drop a Column

alter command is also used to drop columns also.

Syntax:-

alter table table-name drop(column-name)

e.g.

alter table Student drop column (address);

DDL - Drop command

This command completely removes a table from database. This will also destroy the table structure.

Syntax,

drop table table-name

Example

drop table Student;

To drop a database,

drop database Test;

(ii) syntax: **to Delete a particular Record from a Table**

DELETE from Student where s_id=103;

SELECT command

Select query is used to retrieve data from a tables. It is the most used SQL query. We can retrieve complete tables, or partial by mentioning conditions using WHERE clause.

Syntax :

(i) DISPLAY SPECIFIC COLUMNS

SELECT column-name1, column-name2, column-name3, column-name from table-name;

Example

SELECT s_id, s_name, age from Student;

(ii) DISPLAY ALL COLUMNS from Table- A special character asterisk * is used to address all the data(belonging to all columns) in a query. SELECT statement uses * character to retrieve all records from a table.

Example: SELECT * from student;

CONSTRAINTS-

Constraints: Constraints are the conditions that can be enforced on the attributes of a relation. The constraints come in play whenever we try to insert, delete or update a record in a relation. They are **used to ensure integrity of a relation**, hence named as integrity constraints.

i. **Not Null constraint** : It ensures that the column cannot contain a NULL value.

ii. **Unique constraint** : A candidate key is a combination of one or more columns, the value of which uniquely identifies each row of a table.

1. NOT NULL
2. UNIQUE
3. PRIMARY KEY
4. FOREIGN KEY
5. CHECK
6. DEFAULT

Example:

Create table Fee
(RollNo integer(2) Foreign key (Rollno)
references Student (Rollno),
Name char(20) Not null,
Amount integer(4),
Fee_Date date);

Example:
create table Employee
(EmpNo integer(4) Primary Key,
Name char(20) Not Null,
Salary integer(6,2) check (salary > 0),
DeptNo integer(3)
);

example:
create table Employee
(EmpNo integer(4) Primary Key,
Name char(20) Not Null,
Salary integer(6,2) check (salary > 0),
DeptNo integer(3) default 0
);

iii. **Primary Key** : It ensures two things :
(i) Unique identification of each row in the table.
(ii) No column that is part of the Primary Key constraint can contain a NULL value.

iv. **Foreign Key** : The foreign key designates a column or combination of columns as a foreign key and establishes its relationship with a primary key in different table.

v. **Check Constraint** : Sometimes we may require that values in some of the columns of our table are to be within a certain range or they must satisfy certain conditions.

vi. **Default Constraint** : The **DEFAULT constraint** is used to set a **default** value for a column. The **default** value will be added to all new records, if no other value is specified.

WHERE clause

Where clause is used to specify condition while retrieving data from table. Where clause is used mostly with Select, Update and Delete query. If condition specified by where clause is true then only the result from table is returned.

Syntax

SELECT column-name1, column-name2, column-name3, column-nameN
from table-name
WHERE [condition];

Logical operator- AND,OR,NOT

AND operator- AND to show true value if all the conditions are true

EXAMPLE
TO return records where salary is less than 10000 and age greater than 25.
SELECT * from Emp WHERE salary < 10000
AND age > 25;

Like clause- pattern matches

Wildcard operators - used in like clause.

(i) Percent sign % : represents zero, one or more than one character.
(ii) Underscore sign _ : represents only one character.

Example of LIKE clause
To display all records where s_name starts with character 'A'.

OR operator- In this , atleast one condition from the conditions specified must be satisfied by any record to be in the result. Example To return records where either salary is greater than 10000 or age greater than 25. SELECT * from Emp WHERE salary > 10000 OR age > 25;	SELECT * from Student where s_name like 'A%'; Example **To display all records from Student table where s_name contain 'd' as second character.** SELECT * from Student where s_name like '_d%';
Relational Operator (comparison) **>, <, >=, <=, <> (not equal to) =(equal to)**	**IN- used to show the records from a LIST** **Display all records of those employees whose belong to mumbai,delhi,jaipur only** Select * from emp where city in ('mumbai','delhi','jaipur');
BETWEEN- show records within range **Display records whose salary between 2000 to 3000** select * from emp where sal between 2000 and 3000;	

Aggregrate Functions-These functions return a single value after calculating from a group of values. **frequently used Aggregrate functions.** Avg(), Sum(), max(), min(), count(column_name),count(distinct) **count(column name)**- Count returns the number of rows present in the table either based on some condition or without condition. **COUNT(distinct)** SELECT COUNT(distinct salary) from emp;	**Distinct keyword- it** is used with Select statement to retrieve unique values from the table. Distinct removes all the duplicate records while retrieving from database. Syntax : SELECT distinct column-name from table-name; Example **To display only the unique salary from Emp table** select distinct salary from Emp;

HAVING Clause

It is used to give more precise condition for a statement. It is used to mention condition in Group based SQL functions, just like WHERE clause.

Syntax:

```
select column_name, function(column_name)
FROM table_name
WHERE column_name condition
GROUP BY column_name
HAVING function(column_name) condition;
```

Consider the following Sale table.

Oid	order_name	previous_balance	customer

To find the customer whose previous_balance sum is more than 3000.

```
SELECT *
```

from sale group by customer having sum(previous_balance) > 3000;

Order By Clause- arrange or sort data To sort data in descending order DESC keyword Syntax : SELECT column-list|* from table-name order by asc / desc; **To display all records in ascending order of the salary.** SELECT * from Emp order by salary; **To display all records in descending order of the salary.** SELECT * from Emp order by salary DESC;	**Group By Clause-** it is used to group the results of a SELECT query based on one or more columns SELECT column_name, aggregate_function(column_name) FROM table_name WHERE condition GROUP BY column_name; **To find name and age of employees grouped by their salaries** Example SELECT name, age from Emp group by salary; --- **-Group by in a Statement with WHERE clause** select name, max(salary) from Emp where age > 25 group by salary;

where and having clause

where	having
Where- Where clause is used to specify condition on single row.	**having-** It is used to mention condition in Group
Where clause is used mostly with Select, Update and Delete command/query	Having clause is used only with group by clause

MySQL- 1 mark questions

Which command is used to change the number of columns in a table? Ans ALTER	Which keyword is used to select rows containing column that match a wildcard pattern? Ans LIKE
Differentiate between Degree and Cardinality. Ans Degree – it is the total number of columns in the table. Cardinality – it is the total number of tuples/Rows in the table.	All aggregate functions except _____ ignore null values in their input collection. a) Count (attribute) b) Count (*) c) Avg () d) Sum () Ans count(*)

Group functions can be applied to any numeric values, some text types and DATE values. (True/False) Ans True	Which command is used to change the existing information of table? Ans update
Expand the term: RDBMS Ans Relational Database Management System	Write an Aggregate function that is used in MySQL to find No. of Rows in the database Table Ans count(*)
For each attribute of a relation, there is a set of permitted values, called the of that attribute. a). Dictionaries b). Domain c). Directory d). Relation Ans (b) Domain	In SQL, write the query to display the list of databases stored in MySQL. Ans show databases
Which is not a constraint in SQL? a) Unique b) Distinct c) Primary key d) check Ans (b) Distinct	Which command is used to see the structure of the table/relation. a) view b) describe c) show d) select Ans (b) describe
A virtual table is called a ..... Ans view	Which clause is used to remove the duplicating rows of the table? i) or ii) distinct iii) any iv)unique Ans (ii) distinct
Which clause is used in query to place the condition on groups in MySql? i) where ii) having iii) group by iv) none of the above Ans (ii) having	Which command is used for counting the number of rows in a database? i) row ii) count iii) rowcount iv) row_count Ans rowcount
A Resultset is an object that is returned when a cursor object is used to query a table. True/False Ans True	In SQL, name the clause that is used to place condition on groups Ans Having

In SQL, which command is used to change the structure of already created table. Ans Alter table	Which operator performs pattern matching in SQL? Ans Like
What does the following function result into? count(field_name) Ans It returns the number of non-null records from the field.	In SQL, what are aggregate functions? Ans These functions work with data of multiple rows at a time and return a single value.
How many Primary and Foreign keys can a table have? Ans Primary Key – 1 Foreign Key – Many	In SQL, write the name of the aggregate function which is used to calculate & display the average of numeric values in an attribute of a relation. Ans AVG()
Write an SQL query to display all the attributes of a relation named “TEST” along with their description. Ans DESCRIBE TEST; or DESC TEST;	What is the use of LIKE keyword in SQL? Ans LIKE keyword is used to find matching CHAR values with WHERE clause.
Which of the following is NOT a DML command? a). SELECT b). DELETE c). UPDATE d). DROP Ans (d) DROP	What is the purpose of following SQL command: SHOW DATABASES; Ans This command will print name of all the databases present in RDBMS.
Identify the error in the following SQL query which is expected to delete all rows of a table TEMP without deleting its structure and write the correct one: DELETE TABLE TEMP; Ans DELETE FROM TEMP;	In SQL, name the command/clause that is used to display the rows in descending order of a column. Ans Order By …… Desc
In SQL, what is the error in following query : SELECT NAME, SAL, DESIGNATION WHERE DISCOUNT=NULL; Ans SELECT NAME,SAL,DESIGNATION WHERE DISCOUNT IS NULL;	Write any two aggregate functions used in SQL. Ans max(),min(),avg(),count()
Which of the following is a DML command? a) SELECT b) Update c) INSERT d) All Ans (d) All	In SQL, write the query to display the list of databases. Ans SHOW DATABASES’
Which of the following will suppress the entry of duplicate value in a column? a) Unique b) Distinct c) Primary Key d) NOT NULL Ans (b) Distinct	A non-key attribute, whose values are derived from primary key of some other table. a). Alternate Key b). Foreign Key c). Primary Key d). Candidate Key Ans (b) foreign Key

Identify the DDL Command. (i) Insert into command (ii) Create table command (iii) Drop table Command (iv) Delete command Ans (ii) Create table command (iii) Drop table Command	Which clause is used with a SELECT command in SQL to display the records in ascending order of an attribute? Ans Order by
A relation has 45 tuples & 5 attributes, what will be the Degree & Cardinality of that relation? a). Degree 5, Cardinality 45 b). Degree 45, Cardinality 5 c). Degree 50, Cardinality 45 d). Degree 50, Cardinality 2250 Ans (a) Degree 5, Cardinality 45	In SQL, which aggregate function is used to count all records of a table? Ans count(*)
Anita is executing sql query but not getting the appropriate output, help her to do the correction. Select name from teacher where subject=Null; Ans Select name from teacher where subject is Null;	Sunita executes following two statements but got the variation in result 6 and 5 why? (i) select count(*) from user ; (ii) select count(name) from user ; (iii) Ans Count(*) will count rows where as count(name) will count name column only which is having one null value.
What is the difference between where and having in SQL. Ans Where is used apply condition in query, where as having is used only with group.	Write a command to add new column marks in table 'student' data type int. Ans Alter table student add marks int(3)
Write query to display the structure of table teacher. Ans describe teacher or desc teacher	In SQL, what is the use of BETWEEN operator? Ans The BETWEEN operator selects values within a given range
In SQL, name the clause that is used to display the tuples in ascending order of an attribute. Ans Orderby	In SQL, what is the use of IS NULL operator? Ans To check if the column has null value / no value
Write any one aggregate function used in SQL. Ans SUM / AVG / COUNT / MAX / MIN	Which of the following is a DDL command? a) SELECT b) ALTER c) INSERT d) UPDATE Ans (b) ALTER
In SQL, write the query to display the list of tables stored in a database Ans Show tables;	Which of the following types of table constraints will prevent the entry of duplicate rows? a) check b) Distinct c) Primary Key d) NULL Ans (c) Primary Key

Which is known as range operator in MySQL. a) IN b) BETWEEN c) IS d) DISTINCT Ans (b) BETWEEN	If column "salary" of table "EMP" contains the dataset {10000, 15000, 25000, 10000, 25000}, what will be the output of following SQL statement? SELECT SUM(DISTINCT SALARY) FROM EMP; a) 75000 b) 25000 c) 10000 d) 50000 Ans (d) 50000
Which of the following functions is used to find the largest value from the given data in MySQL? a) MAX ( ) b) MAXIMUM ( ) c) LARGEST ( ) d) BIG ( ) Ans (a) MAX()	Name the clause used in query to place the condition on groups in MySQL? Ans having
Write SQL statement to find total number of records in table EMP? Ans count(*)	Write command to list the available databases in MySQL. Ans show databases
In SQL, name of the keyword used to display unique values of an attribute. Ans DISTINCT	In SQL, what is the use of ORDER BY clause ? Ans To display the values in sorted order
Write the function used in SQL to display current date Ans curdate()	Which of the following is a DML command? a) CREATE b)ALTER c) INSERT d) DROP Ans (c) insert
In SQL, write the command / query to display the structure of table 'emp' stored in a database. Ans desc emp	Which of the following type of column constraints will allow the entry of unique and not null values in the column? a) Unique b) Distinct c) Primary Key d) NULL Ans (c) Primary Key
In SQL, name the clause that is used to display the unique values of an attribute of a table. Ans distinct	In SQL, what is the use of <> operator? Ans not equal to
Write any two aggregate function used in SQL Ans max/min/avg/sum/count(*)	Which of the following is/ are DML command(s)? a) SELECT b) ALTER c) DROP d) UPDATE Ans (a) select (d) update
In SQL, write the query to display the list databases. Ans show databases	Which of the following types of table constraints will not prevent NULL entries in a table? a) Unique b) Distinct c) Primary Key d) NOT NULL Ans (c) Primary Key

MySQL -3 and 4 marks Questions

A department is considering to maintain their worker data using SQL to store the data. As a database administer, Karan has decided that :

Name of the database - Department Name of the table - WORKER

The attributes of WORKER are as follows: WORKER_ID - character of size 3 FIRST_NAME – character of size 10
LAST_NAME– character of size 10 SALARY - numeric
JOINING_DATE – Date
DEPARTMENT – character of size 10

WORKER_I D	FIRST_NA ME	LAST_NAM E	SALARY	JOINING_D ATE	DEPARTM ENT
001	Monika	Arora	100000	2014-02-20	HR
002	Niharika	Diwan	80000	2014-06-11	Admin
003	Vishal	Singhal	300000	2014-02-20	HR
004	Amitabh	Singh	500000	2014-02-20	Admin
005	Vivek	Bhati	500000	2014-06-11	Admin
006	Vipul	Diwan	200000	2014-06-11	Account
007	Satish	Kumar	75000	2014-02-20	Account
008	Monika	Chauhan	80000	2014-04-11	Admin

a) Write a query to create the given table WORKER.

b) Identify the attribute best suitable to be declared as a primary key.

c) Karan wants to increase the size of the FIRST_NAME column from 10 to 20 characters. Write an appropriate query to change the size

d) Karan wants to remove all the data from table WORKER from the database Department. Which command will he use from the following:

i) DELETE FROM WORKER;
ii) DROP TABLE WORKER;
iii) DROP DATABASE Department;
iv) DELETE * FROM WORKER;

e) Write a query to display the Structure of the table WORKER, i.e. name of the attribute and their respective data types.

Ans

a) Create table WORKER(WORKER_ID varchar(3), FIRST_NAME varchar(10), LAST_NAME varchar(10), SALARY integer, JOINING_DATE Date, DEPARTMENT varchar(10));
b) WORKER_ID
c) alter table worker modify FIRST_NAME varchar(20);
d) DELETE FROM WORKER;
e) Desc WORKER / Describe WORKER;

Observe the following table and answer the question (a) to (e) (Any 04)

TABLE: VISITOR

VisitorID	VisitorName	ContactNumber
V001	ANAND	9898989898
V002	AMIT	9797979797

V003	SHYAM	9696969696
V004	MOHAN	9595959595

(a) Write the name of most appropriate columns which can be considered as Candidate keys? **1**

(b) Out of selected candidate keys, which one will be the best to choose as Primary Key? **1**

(c) What is the degree and cardinality of the table? **1**

(d) Insert the following data into the attributes VisitorID, VisitorName and ContactNumber respectively in the given table VISITOR. **1**

VisitorID = "V004", VisitorName= "VISHESH" and ContactNumber= 9907607474

(e) Remove the table VISITOR from the database HOTEL. Which command will he used from the following:

a) DELETE FROM VISITOR;

b) DROP TABLE VISITOR; **1**

c) DROP DATABASE HOTEL;

d) DELETE VISITOR FROM HOTEL;

(a) VIsitorID and ContactNumber
(b) VisitorID
(c) Degree= 3
Cardinality=4
(d) insert into VISITOR values ("V004", "VISHESH",9907607474)
(b) DROP TABLE VISITOR;

Write a output for SQL queries (i) to (iii), which are based on the table: SCHOOL and ADMIN given below:

TABLE: SCHOOL

CODE	TEACHERNAME	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI SHANKAR	ENGLISH	12/03/2000	24	10
1009	PRIYA RAI	PHYSICS	03/09/1998	26	12
1203	LISA ANAND	ENGLISH	09/04/2000	27	5
1045	YASHRAJ	MATHS	24/08/2000	24	15
1123	GANAN	PHYSICS	16/07/1999	28	3
1167	HARISH B	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

TABLE: ADMIN

CODE	GENDER	DESIGNATION
1001	MALE	VICE PRINCIPAL
1009	FEMALE	COORDINATOR
1203	FEMALE	COORDINATOR
1045	MALE	HOD
1123	MALE	SENIOR TEACHER
1167	MALE	SENIOR TEACHER
1215	MALE	HOD

a)

i) SELECT SUM (PERIODS), SUBJECT FROM SCHOOL GROUP BY SUBJECT;
ii) SELECT TEACHERNAME, GENDER FROM SCHOOL, ADMIN WHERE DESIGNATION = 'COORDINATOR' AND SCHOOL.CODE=ADMIN.CODE;
iii) SELECT COUNT (DISTINCT SUBJECT) FROM SCHOOL;

Ans

i) ENGLISH 51 PHYSICS 76 MATHS 24 CHEMISTRY 27
ii) PRIYA RAI FEMALE LISA ANAND FEMALE
iii) 4

b)

i) To decrease period by 10% of the teachers of English subject.
ii) To display TEACHERNAME, CODE and DESIGNATION from tables SCHOOL and ADMIN whose gender is male.
iii) To Display number of teachers in each subject.
iv) To display details of all teachers who have joined the school after 01/01/1999 in descending order of experience.
v) Delete all the entries of those teachers whose experience is less than 10 years in SCHOOL table.

Ans

i) update SCHOOL set PERIODS=0.9*PERIODS;
ii) select SCHOOL.TEACHERNAME, SCHOOL.CODE, ADMIN.DESIGNATION from SCHOOL, ADMIN where gender='MALE'.
iii) select SUBJECT, count(*) from SCHOOL group by SUBJECT;
iv) select * from SCHOOL where DOJ>' 01/01/1999' order by EXPERIENCE desc;
v) delete from SCHOOL where EXPERIENCE

Relation : Employee

id	Name	Designation	Sal
101	Naresh	Clerk	32000
102	Ajay	Manager	42500
103	Manisha	Clerk	31500
104	Komal	Advisor	32150
105	Varun	Manager	42000
106	NULL	Clerk	32500

i. Identify the primary key in the table.
Write query for the following
ii. Find average salary in the table.
iii. Display number of records for each individual designation.
iv. Display number of records along with sum of salaries for each individual designation where number of records are more than.
v. What is the degree and cardinality of the relation Employee?

Ans
i) id
ii) Ans. select avg(sal) from employee;
iii) Ans. select designation, count(*) from employee group by designation;
iv) Ans. select designation, count(*), sum(sal) from employee group by designation having count(*)>1;
v) Degree : 4 Cardinality : 6

Write the outputs of the SQL queries (i) to (iii) based on the relation COURSE

CID	CNAME	FEES	STARTDATE	TID
C201	AGDCA	12000	2018-07-02	101
C202	ADCA	15000	2018-07-15	103
C203	DCA	10000	2018-10-01	102

C204	DDTP	9000	2019-09-15	104
C205	DHN	20000	2019-08-01	101
C206	O LEVEL	18000	2018-07-25	105

(i)SELECT DISTINCT TID FROM COURSE;
(ii) SELECT TID, COUNT(*), MIN(FEES) FROM COURSE GROUP BY TID HAVING COUNT(*)>1;
(iii) SELECT COUNT(*), SUM(FEES) FROM COURSE WHERE STARTDATE< '2018-09-15';

Ans
(i) DISTINCT TID
101
103
102
104
105
(ii) TID COUNT(*) MIN(FEES)
101 2 12000
(iii) COUNT(*) SUM(FEES)
4 65000

Write SQL commands for the following queries (i) to (v) on the basis of relation Mobile Master and Mobile Stock.

TABLE: MOBILEMASTER

M_ID	M_Company	M_Name	M_Price	M_Mf_Date
MB001	SAMSUNG	GALAXY	4500	2013-02-12
MB003	MOKIA	N1100	2250	2011-04-15
MB004	MICROMAX	UNITE3	4500	2016-10-17
MB005	SONY	XPERIAM	7500	2017-11-20
MB006	OPPO	SELFIEEX	8500	2010-08-21

TABLE: MOBILESTOCK

S_ID	M_ID	M_QTY	M_SUPPLIER
S001	MB004	450	NEW VISION
S002	MB003	250	PRAVEEN GALLERY
S003	MB001	300	CLASSIC MOBILE STORE
S004	MB006	150	A-ONE MOBILES
S005	MB003	150	THE MOBILE
S006	MB006	50	MOBILE CENTRE

(i) Display the Mobile Company, Name and Price in descending order of their manufacturing date.
(ii) List the details of mobile whose name starts with "S" or ends with "a".
(iii) Display the Mobile supplier & quantity of all mobiles except "MB003".
(iv) List showing the name of mobile company having price between 3000 & 5000.
(v) Display M_Id and sum of Moble quantity in each M_Id.

Ans
(i) SELECT M_Company, M_Name, M_Price FROM MobileMasterORDER BY M_Mf_Date DESC;
(ii) SELECT * FROM MobileMaster WHERE M_Name LIKE "S%" or M_Name LIKE "%a";
(iii) SELECT M_Supplier, M_Qty FROM MobileStock WHERE M_Id <>"MB003";
(iv) SELECT M_Company FROM MobileMaster WHERE M_PriceBETWEEN 3000AND 5000;
(v) SELECT M_Id, SUM(M_Qty) FROM MobileStock GROUP BY M_Id;

As a database administrator
Name of the table : SOFTDRINK
The attributes are as follows:
Drinkcode, Calories - Integer
Price - Decimal
Dname - Varchar of size 20

Drinkcode	Dname	Price	Calories
101	Lime and Lemon	20.00	120
102	Apple Drink	18.00	120
103	Nature Nectar	15.00	115
104	Green Mango	15.00	140
105	Aam Panna	20.00	135
106	Mango Juice Bahar	12.00	150

a) Identify the attributes that can be called Candidate keys.
b) What is the cardinality and degree of the table SOFTDRINK.
c) Include the following data in the above table.
Drinkcode = 107, Dname = “Milkshake” and Calories = 125
d) Give the command to remove all the records from the table.
e) Write a query to create the above table with Drinkcode as the Primary Key.

Ans
a) Drinkcode and Dname
b) Cardinality = 6, Degree = 4
c) Insert into softdrink(drinkcode,dname,calories) values (107,”Milkshake”,125);
d) Delete from softdrink;
e) Create table softdrink(drinkcode integer(5) Primary Key, dname varchar(20), Price decimal(6,2),
calories integer(5));

Write the outputs of the SQL queries i) to iii) based on the tables given below:
Table: ITEM ID

Item_Name	Manufacturer	Price
PC01	Personal Computer ABC	35000
LC05	Laptop ABC	55000
PC03	Personal Computer XYZ	32000
PC06	Personal Computer COMP	37000
LC03	Laptop PQR	57000

Table: CUSTOMER

C_ID	CName	City	ID
01	N Roy	Delhi	LC03
06	R Singh	Mumbai	PC03
12	R Pandey	Delhi	PC06
15	C Sharma	Delhi	LC03
16	K Agarwal	Bangalore	PC01

i) Select Item_Name, max(Price), count(*) from Item group by Item_Name ;
ii) Select CName, Manufacturer from Item, Customer where Item.ID = Customer.ID;
iii) Select Item_Name, Price * 100 from Item where Manufacturer = “ABC”;

Ans
i) Personal Computer 37000 3
Laptop 57000 2
ii) N Roy PQR
R Singh XYZ
R Pandey COMP

C Sharma PQR
K Agarwal ABC
iii) Personal Computer 3500000
Laptop 5500000

Write SQL commands for i) to v) based on the relations given below.

Table: Store

ItemNo	Item	Scode	Qty	Rate	LastBuy
2005	Sharpner 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 Stationary
23	Soft Plastics
22	Tetra Supply

i) To display details of all the items in the Store table in descending 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 is 22 or Quantity in store 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.
v) To display ItemNo, Item Name and Sname from the tables with their corresponding matching Scode.
Ans

(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 scode, min(rate) from store group by scode;
(v) Select Itemno, Item, Store.scode, Sname from Store, Suppliers where Store.scode = Suppliers.scode;

A CD/DVD Shop named “NEW DIGITAL SHOP” stores various CDs & DVDs of songs/albums/movies and use SQL to maintain its records. As a Database Administrator, you have decided the following:
Name of Database - CDSHOP
Name of Relation - LIBRARY
Attributes are:-
(a) CDNO - Numeric values
(b)NAME - Character values of size (25)
(c) QTY - Numeric values
(d)PRICE - Decimal values

Table: LIBRARY

CDNO	NAME		QTY	PRICE
10001	Indian Patriotic	20	150	
10004	Hanuman Chalisa		15	80
10005	Instrumental of Kishore	25	95	
10003	Songs of Diwali	18	125	
10006	Devotional Krishna Songs		14	75
10002	Best Birthday Songs		17	NULL

Answer the following questions based on the above table LIBRARY:-
(a) Write the Degree & Cardinality of the relation LIBRARY.
(b) Identify the best attribute which may be declared as Primary key.
(c) Insert the following record in the above relation: (10009, ”Motivational Songs”, 15, 70)
(d) Write an SQL query to display the minimum quantity.
(e) Database administrator wants to count the no. of CDs which does not have any Price value.
Write the query for the same.

Ans
(a)Degree- 4 , cardinality- 6
(b) CDNO
(c) INSERT INTO LIBRARY VALUES (10009, ”Motivational Songs”, 15, 70);
(d) SELECT MIN(QTY) FROM LIBRARY;
(e) SELECT COUNT(*) FROM LIBRARY WHERE PRICE IS NULL;

Write the Outputs of the SQL queries (i) to (iii) based on the given below tables:
TABLE: TRAINER

TID	TNAME	CITY	HIREDATE	SALARY
101	SUNAINA	MUMBAI	1998-10-15	90000
102	ANAMIKA	DELHI	1994-12-24	80000
103	DEEPTI	CHANDIGARH	2001-12-21	82000
104	MEENAKSHI	DELHI	2002-12-25	78000
105	RICHA	MUMBAI	1996-01-12	95000
106	MANIPRABHA	CHENNAI	2001-12-12	69000

CID	CNAME	FEES	STARTDATE	TID
C201	AGDCA	12000	2018-07-02	103
C202	ADCA	15000	2018-07-15	103
C203	DCA	10000	2018-10-01	102
C204	DDTP	9000	2018-09-15	104
C205	DHN	20000	2018-08-01	101
C206	O LEVEL	18000	2019-07-25	105

(a)
(i)SELECT DISTINCT(CITY) FROM TRAINER WHERE SALARY>80000;
(ii) SELECT TID, COUNT(*), MAX(FEES) FROM COURSE GROUP BY TID HAVING COUNT(*)>1;
(iii) SELECT T.TNAME, C.CNAME FROM TRAINER T, COURSE C WHERE T.TID=C.TID AND T.FEES

Ans (a)
(i)
MUMBAI
DELHI
CHANDIGARH
CHENNAI
(ii)
TID COUNT(*) MAX(FEES)
101 2 20000
(iii)
T.TNAME C.CNAME

MEENAKSHI DDTP

(b)
(i)Display all details of Trainers who are living in city CHENNAI.
(ii) Display the Trainer Name, City & Salary in descending order of their Hiredate.
(iii) Count & Display the number of Trainers in each city.
(iv) Display the Course details which have Fees more than 12000 and name ends with 'A'.
(v) Display the Trainer Name & Course Name from both tables where Course Fees is less than 10000.

Ans
(i) SELECT * FROM TRAINER WHERE CITY IS "CHENNAI";
(ii) SELECT TNAME, CITY, SALARY FROM TRAINER ORDER BY HIREDATE DESC;
(iii) SELECT CITY, COUNT(*) FROM TRAINER GROUP BY CITY;
(iv) SELECT * FROM COURSE WHERE FEES>12000 AND CNAME LIKE '%A';
(v) SELECT T.TNAME, C.CNAME FROM TRAINER T, COURSE C WHERE T.TID=C.CID AND C.FEES;

Modern Public School is maintaining fees records of students. The database administrator Aman decided that- • Name of the database -School
• Name of the table – Fees
• The attributes of Fees are as follows:
Rollno - numeric Name – character of size 20
Class - character of size 20
Fees – Numeric
Qtr – Numeric
(i) Identify the attribute best suitable to be declared as a primary key
(ii) Write the degree of the table.
(iii) Insert the following data into the attributes Rollno, Name, Class, Fees and Qtr in fees table.
(iv) Aman want to remove the table Fees table from the database School. Which command will he use from the following:

a) DELETE FROM Fees;
b) DROP TABLE Fees;
c) DROP DATABASE Fees;
d) DELETE Fees FROM Fees;

(v) Now Aman wants to display the structure of the table Fees, i.e, name of the attributes and their respective data types that he has used in the table. Write the query to display the same.

Ans
i)Primary Key – Rollno
ii)Degree of table= 5
iii)Insert into fees values(101,'Aman','XII',5000);
iv)DELETE FROM Fees
v)Describe Fees

Consider the table TEACHER given below. Write commands in SQL for (i) to (iii)

TABLE: TEACHER

ID	Name	Department	Hiredate	Category	Gender	Salary
1	Taniya	SocialStudies	03/17/1994	TGT	F	25000
2	Abhishek	Art	02/12/1990	PRT	M	20000
3	Sanjana	English	05/16/1980	PGT	F	30000
4	Vishwajeet	English	10/16/1989	TGT	M	25000
5	Aman	Hindi	08/1/1990	PRT	F	22000
6	Pritam	Math	03/17/1980	PRT	F	21000
7	RajKumar	Science	09/2/1994	TGT	M	27000
8	Sital	Math	11/17/1980	TGT	F	24500

i. To display all information about teachers of Female PGT Teachers.
ii. To list names, departments and date of hiring of all the teachers in descending order of date of joining.
iii. To count the number of teachers and sum of their salary department wise

Ans

i) SELECT * FROM TEACHER WHERE CATEGORY= 'PGT' AND GENDER= 'F';
ii) SELECT NAME, DEPARTMENT, HIREDATE FROM TEACHER ORDER BY HIREDATE DESC;
iii) SELECT DEPARTMENT, COUNT(NAME), SUM(SALARY) FROM TEACHER GROUP BY DEPARTMENT;

Write SQL commands for the queries (i) to (iii) and output for (iv) & (v) based on a table COMPANY and CUSTOMER .

TABLE:COMPANY

CID	NAME	CITY	PRODUCTNAME
111	SONY	DELHI	TV
222	NOKIA	MUMBAI	MOBILE
333	ONIDA	DELHI	TV
444	SONY	MUMBAI	MOBILE
555	BLACKBERRY	MADRAS	MOBILE
666	DELL	DELHI	LAPTOP

TABLE:CUSTOMER

CUSTID	NAME	PRICE	QTY	CID
101	Rohan Sharma	70000	20	222
102	Deepak Kumar	50000	10	666
103	Mohan Kumar	30000	5	111
104	SahilBansal	35000	3	333
105	NehaSoni	25000	7	444
106	SonalAggarwal	20000	5	333
107	Arjun Singh	50000	15	666

(i) To display those company name which are having price less than 30000.
(ii) To display the name of the companies in reverse alphabetical order.
(iii) To increase the price by 1000 for those customer whose name starts with 'S'
(iv) SELECT PRODUCTNAME,CITY, PRICE FROM COMPANY,CUSTOMER WHERE COMPANY.CID=CUSTOMER.CID AND PRODUCTNAME="MOBILE";
(v) SELECT AVG(QTY) FROM CUSTOMER WHERE NAME LIKE "%r%;

Ans
i) SELECT COMPANY.NAME FROM COMPANY,CUSTOMER WHERECOMPANY.CID = CUSTOMER.CID AND CUSTOMER.PRICE<30000;
ii) SELECT NAME FROM COMPANY ORDER BY NAME DESC;
iii) UPADE CUSTOMER SET PRICE = PRICE+1000 WHERE NAME LIKE 'S%';
iv)

PRODUCTNAME	CITY	PRICE
MOBILE	MUMBAI	70000
MOBILE	MUMBAI	25000

v) 12

ABC school is considering to maintain their student's information using SQL to store the data. As a database administrator Harendra has decided that:
Name of database : school
Name of table : student

Attributes of the table are as follow:
AdmissionNo-numeric
FirstName –character of size 30
LastName - character of size 20
DOB - date
Table student

AdmissionNo	FirstName	LastName	DOB
012355	Rahul	Singh	2005-05-16
012358	Mukesh	Kumar	2004-09-15
012360	Pawan	Verma	2004-03-03
012366	Mahesh	Kumar	2003-06-08
012367	Raman	Patel	2007-03-19

(i) What is the degree and cardinality of the table student
(ii) Identify the attribute best suitable to be declared as Primary Key
(iii) Insert the following data in table student
AdmissionNo=012368
FirstName = Kamlesh
LastName = Sharma
DOB =01 Jan 2004
(iv) Harendra wants to remove the data of mukesh whose admission no is 012358, suggest him SQL command to remove the above said data.
(v) To remove the table student which command is used :
i. Delete from student
ii. Drop table student
iii. Drop database school
iv. Delete student from school

Ans

i.Degrre-4 Cardinility-5
ii. AdmissionNo
iii. insert into student values(012368,'Kamlesh','Sharma','2004-01-01')
iv. Delete command
v. Drop table student

Table : Employee

EmployeeId	Name	Sales	JobId
E1	Sumit Sinha	110000	102
E2	Vijay Singh Tomar	130000	101
E3	Ajay Rajpal	140000	103
E4	Mohit Kumar	125000	102
E5	Sailja Singh	145000	103

Table: Job

JobId	JobTitle	Salary
101	President	200000
102	Vice President	125000
103	Administrator Assistant	80000
104	Accounting Manager	70000
105	Accountant	65000
106	Sales Manager	80000

Give the output of following SQL statement:
(i) Select max(salary),min(salary) from job

(ii) Select Name,JobTitle, Sales from Employee,Job where Employee.JobId=Job.JobId and JobId in (101,102)
(iii) Select JobId, count(*) from Employee group by JobId;

Ans
i.200000, 65000
ii.

Vijay Singh Tomar	President	130000
Sumit Sinha	Vice President	110000
Mohit Kumar	Vice President	125000

iii. 101 1
102 2
103 2

Write SQL Commands for the following queries based on the relations PRODUCT and CLIENT given below.

Table: Product

P_ID	ProductName	Manufacturer	Price	ExpiryDate
TP01	Talcum Powder	LAK	40	2011-06-26
FW05	Face Wash	ABC	45	2010-12-01
BS01	Bath Soap	ABC	55	2010-09-10
SH06	Shampoo	XYZ	120	2012-04-09
FW12	Face Wash	XYZ	95	2010-08-15

Table: Client

C_ID	ClientName	City	P_ID
1	Cosmetic Shop	Delhi	FW05
6	Total Health	Mumbai	BS01
12	Live Life	Delhi	SH06
15	Pretty One	Delhi	FW05
16	Dreams	Bengaluru	TP01
14	Expressions	Delhi	NULL

(i) To display the ClientName and City of all Mumbai- and Delhi-based clients in Client table.
(ii) Increase the price of all the products in Product table by 10%.
(iii) To display the ProductName, Manufacturer, ExpiryDate of all the products that expired on or before '2010-12-31'.
(iv)To display C_ID, ClientName, City of all the clients (including the ones that have not purchased a product) and their corresponding ProductName sold.
(v) To display productName, Manufacturer and ClientName of Mumbai City.

Ans
(i)select ClientName, City from Client where City = 'Mumbai' or City = 'Delhi';
(ii) update Product set Price = Price + 0.10 * Price;
(iii) select ProductName, Manufacturer, ExpiryDate from Product where ExpiryDate < = '2010-12-31';
(iv) select C_ID, ClientName, City, ProductName from Client Left Join Product on Client. P_ID = Product.P_ID;
(v) select ProductName, Manufacturer, ClientName from product,client Where product.P_ID=Client.P_ID and city='Mumbai';

A school KV is considering to maintain their eligible students' for scholarship's data using SQL to store the data. As a database administer, Abhay has decided that :
• Name of the database - star
• Name of the table - student
• The attributes of student table as follows:
No. - numeric
Name – character of size 20

Stipend - numeric
Stream – character of size 20
AvgMark – numeric
Grade – character of size 1
Class – character of size 3

Table 'student'

No.	Name	Stipend	Stream	AvgMark	Grade	Class
1	Karan	400.00	Medical	78.5	B	12B
2	Divakar	450.00	Commerce	89.2	A	11C
3	Divya	300.00	Commerce	68.6	C	12C
4	Arun	350.00	Humanities	73.1	B	12C
5	Sabina	500.00	Nonmedical	90.6	A	11A
6	John	400.00	Medical	75.4	B	12B
7	Robert	250.00	Humanities	64.4	C	11A
8	Rubina	450.00	Nonmedical	88.5	A	12A
9	Vikas	500.00	Nonmedical	92.0	A	12A
10	Mohan	300.00	Commerce	67.5	C	12C

(a)Write query to create table.
(b) Which column is suitable to be a primary key attribute.
(c) What is the degree and cardinality of table student.
(d) Display the details of student in ascending order of name.
(e) Write query to change the grade of karan from 'B' to 'A'

Ans
(i) create table student(no integer,name char(20), stipend integer,stream char(20),avgmark integer, grade char(1),class char(3));
(ii)No is Best suitable primary key
(iii) Degree = 7, cardinality = 10
(iv) select * from student order by name;
(v) update student set grade='A' where name='Karan';

Consider the following tables Sender and Recipient. Write SQL commands for the statements (a) to (c) and give the outputs for SQL queries (d) to (e).

Table: Sender

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

Table: Recipients

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

a. To display the RecIC, Sendername, SenderAddress, RecName, RecAddress for every Recipient
b. To display Recipient details in ascending order of RecName
c. To display number of Recipients from each city

d. To display the details of senders whose sender city is 'mumbai'
e. To change the name of recipient whose recid is 'Ko05' to' S Rathore'.

Ans
a. Select R.RecIC, S.Sendername, S.SenderAddress, R.RecName, R.RecAddress from Sender S, Recepient R where S.SenderID=R.SenderID ;
b. SELECT * from Recipent ORDER By RecName;
c. SELECT COUNT(*) from Recipient Group By RecCity;
d.Select * from sender where Sendercity='mumbai';
e. update recipient set RecName='S Rathore' where RecID=' KO05'

A departmental store MyStore is considering to maintain their inventory using SQL to store the data. As a database administer, Abhay has decided that :
• Name of the database - mystore
• Name of the table - STORE
• The attributes of STORE are as follows:
ItemNo - numeric
ItemName – character of size 20
Scode - numeric
Quantity – numeric

Table : STORE

ItemNo	ItemName	Scode	Quantity
2005	Sharpener Classic	23	60
2003	Ball Pen 0.25	22	50
2002	Get Pen Premium	21	150
2006	Get Pen Classic	21	250
2001	Eraser Small	22	220
2004	Eraser Big	22	110
2009	Ball Pen 0.5	21	180

(a) Identify the attribute best suitable to be declared as a primary key,
(b) Write the degree and cardinality of the table STORE.
(c) Insert the following data into the attributes ItemNo, ItemName and SCode respectively in the given table STORE.
ItemNo = 2010, ItemName = "Note Book" and Scode = 25
(d) Abhay want to remove the table STORE from the database MyStore. Which command will he use from the following:
a) DELETE FROM store;
b) DROP TABLE store;
c) DROP DATABASE mystore;
d) DELETE store FROM mystore;
(e) Now Abhay wants to display the structure of the table STORE, i.e, name of the attributes and their respective data types that he has used in the table. Write the query to display the same.

Ans
(a) ItemNo 1
(b) Degree = 4 Cardinality = 7
(c) INSERT INTO store (ItemNo,ItemName,Scode) VALUES(2010, "Note Book",25);
(d) DROP TABLE store; 1
(e) Describe Store;

Write the outputs of the SQL queries (i) to (iii) based on the relations Teacher and Posting given below:
Table : Teacher

T_ID	Name	Age	Department	Date_of_join	Salary	Gender
1	Jugal	34	Computer Sc	10/01/2017	12000	M
2	Sharmila	31	History	24/03/2008	20000	F
3	Sandeep	32	Mathematics	12/12/2016	30000	M
4	Sangeeta	35	History	01/07/2015	40000	F
5	Rakesh	42	Mathematics	05/09/2007	25000	M
6	Shyam	50	History	27/06/2008	30000	M
7	Shiv Om	44	Computer Sc	25/02/2017	21000	M
8	Shalakha	33	Mathematics	31/07/2018	20000	F

Table : Posting

P_ID	Department	Place
1	History	Agra
2	Mathematics	Raipur
3	Computer Science	Delhi

(a)

i. SELECT Department, count(*) FROM Teacher GROUP BY Department;

ii. SELECT Max(Date_of_Join),Min(Date_of_Join) FROM Teacher;

iii. SELECT Teacher.name,Teacher.Department, Posting.Place FROM Teacher, Posting WHERE Teacher.Department = Posting.Department AND Posting.Place=”Delhi”;

Ans

i.

Department	Count(*)
History	3
Computer Sc	2
Mathematics	3

ii. Max - 31/07/2018 or 2018-07-31 Min- 05/09/2007 or 2007-09-05

iii.

name	Department	Place
Jugal	Computer Sc	Delhi
Shiv Om	Computer Sc	Delhi

(b)

i.To show all information about the teacher of History department.

ii. To list the names of female teachers who are in Mathematics department.

iii. To list the names of all teachers with their date of joining in ascending order.

iv. To display teacher’s name, salary, age for male teachers only.

v. To display name, bonus for each teacher where bonus is 10% of salary.

Ans

i. SELECT * FROM teacher WHERE department= “History”; 5

ii. SELECT name FROM teacher WHERE department= “Mathematics” AND gender= “F”;

iii. SELECT name FROM teacher ORDER BY date_of_join;

iv. SELECT name, salary, age FROM teacher WHERE gender=’M’;

v. SELECT name, salary*0.1 AS ‘Bonus’ FROM teacher;

An organization SoftSolutions is considering to maintain their employees records using SQL to store the data. As a database administer, Murthy has decided that :

- Name of the database - DATASOFT
- Name of the table - HRDATA
- The attributes of HRDATA are as follows:

ECode – Numeric
EName – character of size 30
Desig – Character of size 15
Remn – numeric

Table: HRDATA

ECode	EName	Desig	Remn
80001	Lokesh	Programmer	50000
80004	Aradhana	Manager	65000
80007	Jeevan	Programmer	45000
80008	Arjun	Admin	55000
80012	Priya	Executive	35000

a) Identify the attribute best suitable to be declared as a primary key.
b) Write the degree and cardinality of the table HRDATA,
c) Write command to insert following data in the table:
ECode = 80015, Ename = "Allen" Remn = 43000
d) Write SQL statement to delete the record of Jeevan from the table HRDATA.
e) Write SQL statement to increase the Remn of all the employees by 10 percent.

Ans
a) Ecode
b) Degree: 4, Cardinality: 5
c) Insert into HRDATA (Ecode, Ename, Remn) VALUES (80015, "Allen", 43000)
d) DELETE FROM HRDATA WHERE ENAME LIKE "Jeevan";
e) UPDATE HRDATA SET REMN = REMN * 1.10;

Consider the following tables: COMPANY and MODEL. Write the outputs of the SQL queries (a) to (c) based on the relations COMPANY and MODEL given below:

Table: COMPANY

CompID	CompName	CompHQ	Contact Person
1	Titan	Okhla	C.B. Ajit
2	Ajanta	Najafgarh	R. Mehta
3	Maxima	Shahdara	B. Kohli
4	Seiko	Okhla	R. Chadha
5	Ricoh	Shahdara	J. Kishore

Table: MODEL

Model_ID	Comp_ID	Cost	DateOfManufacture
T020	1	2000	2010-05-12
M032	4	7000	2009-04-15
M059	2	800	2009-09-23
A167	3	1200	2011-01-12
T024	1	1300	2009-10-14

a) Select COUNT(DISTINCT CompHO) from Company;
b) Select CompName, „Mr.", ContactPerson from Company where CompName like „%a";
c) select Model_ID, Comp_ID, Cost, CompName, ContactPerson from Model, Company where
Model.Comp_ID = Company.Comp_ID and Comp_ID > 2; 3 37;

Ans
a) 3
b) Ajanta Mr. R. Mehta

Maxima Mr. B. Kohli
c) M032 4 7000 Seiko R. Chadha
A167 3 1200 Maxima B. Kohli

Write SQL commands for (i) to (v) on the basis of relations given below:

Table: BOOKS

book_id	Book_name	author_name	Publishers	Price	Type	qty
L01	Let us C	Sanjay Mukharjee	EPB	450	Comp	15
L02	Genuine	J. Mukhi	FIRST PUBL.	755	Fiction	24
L04	Mastering C++	Kantkar	EPB	165	Comp	60
L03	VC++ advance	P. Purohit	TDH	250	Comp	45
L05	Programming with Python	Sanjeev	FIRST PUBL.	350	Fiction	30

Table: ISSUED

Book_ID	Qty_Issued
L02	13
L04	5
L05	21

(i) To show the books of FIRST PUBL. Publishers written by P. Purohit.
(ii) To display cost of all the books published for EPB.
(iii) Depreciate the price of all books of EPB publishers by 5%.
(iv) To display the BOOK_NAME and price of the books, more than 5 copies of which have been issued.
(v) To show total cost of books of each type.

Ans
i) SELECT * FROM BOOKS WHERE PUBLISHER LIKE „FIRST PUBL.‟ AND AUTHOR_NAME LIKE „P. Purohit‟;
ii) Select Price from Books where PUBLISHER LIKE „EPB‟;
iii) UPDATE BOOKS SET PRICE = PRICE * 0.90 WHERE PUBLISHER LIKE „EPB‟;
iv) SELECT BOOK_NAME, PRICE FROM BOOKS B, ISSUED I WHERE B.BOOK_ID = I.BOOK_ID AND QTY_ISSUED > 5;
v) SELECT SUM(PRICE) FROM BOOKS GROUP BY TYPE;

A Medical store “Lifeline” is planning to maintain their inventory using SQL to store the data. A database administer has decided that:

- Name of the database -medstore
- Name of the table –MEDICINE
- The column of MEDICINE table are as follows:
- ino - integer
- iname – character of size 15
- mcode - integer
- qty – integer

ino	**iname**	**mcode**	**qty**
1001	Surgical Mask	22	60
1002	Sanitizer	22	50
1003	Paracetamol	21	150
1005	Fast Relief gel	23	250
1006	Dettol	22	220
2004	Cough syrup	24	110
2009	Hand gloves	22	1803

(a) Identify the attribute best suitable to be declared as a primary key,
(b) If Administrator adds two more attributes in the table MEDICINE then what will be the degree and cardinality of the table MEDICINE.
(c) Administrator wants to update the content of the row whose
ino is 1003 as , iname = “Paracetamol Tablet ” mcode = 25 and qty = 100
(d) Administrator wants to remove the table MEDICINE from the database medstore . Which command will he use from the following:

a) DELETE FROM store;
b) DROP TABLE MEDICINE;
c) DROP DATABASE medstore;
d) DELETE MEDICINE FROM medstore;

(e) Now Administrator wants to display only unique code of the table MEDICINE . Write the query to display the same

Ans
(a) ino
(b) Degree= 6 Cardinality =7
(c) UPDATE MEDICINE set iname= ‘Paracetamol Tablet’,mcode=25, qty=100 where ino = 1003 ;
(d) DROP TABLEMEDICINE;
(e) Select distinct mcode from MEDICINE;

Write SQL commands for the following queries (i) to (v) based on the relations Vehicle and Travel given below.

Table :Travel

NO	NAME	TDATE	KM	CODE	NOP
101	Janish Kin	2015-11-13	200	101	32
103	Vedika Sahai	2016-04-21	100	103	45
105	Tarun Ram	2016-03-23	350	102	42
102	John Fen	2016-02-13	90	102	40
107	Ahmed Khan	2015-01-10	75	104	2
104	Raveena	2016-05-28	80	105	4

Table : Vehicle

CODE	VTYPE	PERKM
101	VOLVO BUS	160
102	AC DELUXE BUS	150
103	ORDINARY BUS	90
105	SUV	40
104	CAR	20

i. To display NO, NAME, TDATE from the table Travel in descending order of NO.
ii. To display the NAME of all the travelers from the table Travel who are travelling by vehicle with code 101 or 102.
iii. To display the NO and NAME of those travelers from the table Travel who travelled between ‘2015-12-31’ and ‘2016-04-01’.
iv. To display the CODE,NAME,VTYPE from both the tables with distance travelled (km) less than 90 Km.
v. To display the NAME of those traveler whose name starts with the alphabet ‘R’.

Ans

i. SELECT NO,NAME,TDATE from Travel ORDER BY NO DESC;
ii. SELECT NAME from Travel WHERE CODE = 101 OR CODE= 102;
iii. SELECT NO, NAME from Travel WHERE TDATE BETWEEN ‘2015-12-31’ AND ‘2016-04-01’;
iv. SELECT A.CODE, NAME, VTYPE FROM Travel A, Vehicle B WHEREA.CODE=B.CODE AND KM<90;
v. SELECT NAME from Travel WHERE NAME LIKE ‘R%’ ;

MySQL Connectivity

```
import mysql.connector as m
# Open database connection
db = m.connect(host="localhost",user="root",passwd="1234")

# prepare a cursor object using cursor() method
cursor = db.cursor()

# execute SQL query using execute() method.
cursor.execute("show databases")                # write any sql related command in execute function

# Fetch a first three rows using fetchmany() method.
data = cursor.fetchmany(3)
for i in data:
        print (i)

# disconnect from server
db.close()
```

To fetch some useful information from the database, can use either
fetchone() method to fetch single record
fetchall() method to fetch multiple values from a database table.
fetchmany()- to fetch limited no of records

rowcount – it returns the number of rows using execute() method

Once a database connection is established, we are ready to create tables or records into the database tables using **execute** method of the created cursor.

NETWORKING

Two or more computing devices connected to one another in order to exchange information or share resources, form a computer network.

Advantages-

Share resources-	Share Storage	Share Software and hardware	Security	Back up and Roll back is easy

TYPES OF NETWORK-based on geographical spread

PAN (personal area network)- communication between two- three mobile devices or PC for personal purpose.	LAN(local area network)- limited area (within building, block or campus) 0-10 km	MAN(metropolitan area network)- within city (10-100 kms)	WAN(wide area network)- within multiple city/state/ countries (more than 100 kms)

Switching Techniques

Packet Switching	**Message Switching**	**Circuit Switching**

data to be transmitted is divided into packets transmitted through the network	delay in delivering email is allowed unlike real time data transfer between two computers.	A dedicated path has to be established between the source and the destination before transfer of data commences.
Follows Store(RAM) and forward technique	Each message is stored (usually on hard drive) before being transmitted to the next switch.	In circuit switching, data is not stored.
There is no need to establish a dedicated path from the source to the destination.	There is no need to establish a dedicated path from the source to the destination.	It is a connection oriented network switching technique.
e.g. email	e.g. Internet call	e.g. Voice call

Full Form of networking Terms

SSL- Secure Sockets Layer	IMAP-Internet Message Access Protocol	FTP- File transfer protocol	WiFi-Wireless Fidelity	HTTPs- Hyper Text Transfer Protocol Secure
WAP-Wireless Application Protocol	VoIP- Voice Over Internet Protocol	SMTP-Simple Mail Transfer Protocol	TDMA- Time DIvision Multiple Access	CDMA- Code Division Multiple Access
TCP/IP-Transmission Control Protocol/Internet Protocol	LAN- Local Area Network	WAN- Wide Area Network	MAN- Metropolitan Area Network	PAN-Personal Area Network
IR-Infrared	IRC-Internet Relay Chat	GPRS-General Packet Radio Service	GSM- Global System for Mobile Communications	e-mail-Electronic Mail
ASP-Active Server Pages	JSP-Java Server/Script Pages	XML-eXtensible Markup Language	HTML-Hyper Text Markup Language	Bps- Bytes per Second
bps- bits per second	ARPAnet- Advanced Research Project Agency Network	POP- Post office Protocol	nfc- Near field Communication	VoIP-voice over internet protocol

Network Devices

Hub-connects multiple computers in a single LAN network. It distributes the bandwidth equally to all computers	Switch- connects multiple computers in a single LAN network but doesn't distribute equal bandwidth to all. It is intelligent hub. It sends information only to intended computer/node	Modem-used to access the internet , converts analog signal into digital and vice versa. (modulation/demodulation)

Router- to receive packets from one connected network and pass them to second connected network.(for routing) **Connects multiple networks with different protocols**	**Gateway-connects dissimilar networks** **Bridge- connects similar networks**	**Repeater-(amplify) regenerates the signal and forwards these signal with more power.**

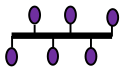
Network Protocols

FTP-for uploading a file	**HTTP-for downloading a file**	**POP3()-for receiving emails**	**Telnet-for remote login**
IMAP-for receiving mails	**SMTP-for sending mails**	**VoIP-for video calling or voice call using internet connection**	**TCP/IP-for communication**
GPRS,GSM,WLL- for wireless /mobile communication protocol		**RTP-(Real-time Transport Protocol)-** transport protocol for real-time audio and video data	

Tips for Case Based Questions

Layout-draw block diagram to show interconnecting blocks. Prefer the block with maximum devices as main server to connect other blocks
Topology-write name of the topology-star/bus/ring etc
Placement of server-block/unit with maximum number of computers
Cost effective medium for internet- Broadband connection over telephone lines
Communication media for LAN-Ethernet/Co-axial cable for high speed within LAN
Communication media for Hills-Radiowave/Microwave
Communication media for desert-Radio Wave
Very fast communication wired media between two cities-Optical fiber
Very fast communication wireless / media between two cities/countries-Satellite
Device/Software to prevent unauthorized access-Firewall (hardware and Software)
Repeater-distance between server and other block is more than 80

TOPOLOGIES

Bus-  Easy to install Minimal Cable	**Star-**  Easy to install, easy to configure	**Ring**  Easy to install Easy to configure Easy to detect a problem

Difficult to find the problem Difficult to add new devices Difficult reconnection	If one link fails the network can still function If central computer fails ,entire network fails	Break means the whole system is dead

Networking-1 marks Questions

_____is a network device that connects dissimilar networks. Ans Gateway	Give one example of each – Guided media and Unguided media Ans Guided – Twisted pair, Coaxial Cable, Optical Fiber (any one) Unguided – Radio waves, Satellite, Micro Waves (any one)
Ravi received a mail from IRS department on clicking "Click –Here", he was taken to a site designed to imitate an official looking website, such as IRS.gov. He uploaded some important information on it Ans Phishing	_____is a specific condition in a network when more data packets are coming to network device than they can handle and process at a time. Ans Network Congestion
Name the protocol that is used to transfer file from one computer to another. Ans FTP	Raj is a social worker, one day he noticed someone is writing insulting or demeaning comments on his post. What kind of Cybercrime Raj is facing? Ans Identity Theft
Name the Transmission media which consists of an inner copper core and a second conducting outer sheath. Ans Co-axial cable	Write the expanded form of GPRS? Ans General Packet Radio Service (GPRS)
Define Bandwidth? Ans a band of frequencies used for sending electronic signals	----------describe the maximum data transfer rate of a network or Internet connection. Ans Bandwidth
Mahesh wants to transfer data within a city at very high speed. Write the wired transmission medium and type of network. Ans Wired transmission medium – Optical fiber cable Type of network – MAN.	What is a Firewall in Computer Network? A). The physical boundary of Network B). An operating System of Computer Network C). A system designed to prevent unauthorized access D). A web browsing Software Ans C). A system designed to prevent unauthorized access.

Which of the following is not done by cyber criminals? a) Unauthorized account access b) Mass attack using Trojans as botnets c) Report vulnerability in any system d) Email spoofing and spamming Ans (c) Report vulnerability in any system	Name the wired transmission media which has a higher bandwidth. Ans Optical Fiber
Name the network device that connects dissimilar networks. Ans Gateway	Arrange the following media in decreasing order of transmission rates. Twisted Pair Cables, Optical Fiber, Coaxial Cables. Ans Optical Fiber, Coaxial Cables, Twisted Pair Cables
Name the protocol used for remote login. Ans TELNET	Website incharge KABIR of a school is handling downloading/uploading various files on school website. Write the name of the protocol which is being used in the above activity. Ans FTP
What is its use of Data encryption in a network communication? Ans Data encryption is the process of converting a message into an unmeaningful form. It is used to ensure data security while communication.	Give the full form of the following: (a) URL (b) TDMA Ans (a) URL – Uniform Resource Locator (b)TDMA – Time Division Multiple Access
Differentiate between Bps & bps. Ans Bps is Byte per second and bps is bits per second which tells the variation in data transmission speed.	Identify the Guided and Un-Guided Transmission Media out of the following: Satellite, Twisted Pair Cable, Optical Fiber, Infra- Red waves Ans Guided: Twisted Pair Cable, Optical Fiber Unguided: Satellite, Infra-Red waves
Protocol is used to send email …… Ans SMTP (simple mail transfer protocol)	Your friend Sunita complaints that somebody has created a fake profile on Twitter and defaming her character with abusive comments and pictures. Identify the type of cybercrime for these situations. Ans Identity Theft
Name the transmission media best suitable for connecting to desert areas. Ans microwave	Write the expanded form of VPN. Ans Virtual Private Network
Rearrange the following terms in increasing order of speedy medium of data transfer. Telephone line, Fiber Optics, Coaxial Cable, Twisted Paired Cable	What is Telnet? Ans Telnet is an internet utility that lets us log on to a remote computer system. A user is able to log in the system for sharing of files without being the actual user of that system

Ans Telephone line, Twisted Pair Cable, Coaxial Cable, Fiber Optics	
State whether the following statements is True or False. When two entities are communicating and do not want a third party to listen, this situation is defined as secure communication. Ans True	Expand the term a). XML b). SMS Ans (a) XML-Extensible Markup Language (b) SMS–Short Messaging Service
Name two web scripting languages Ans VBScript, JavaScript, ASP, PHP, PERL and JSP	Which of these is not an example of unguided media? (i) Optical Fibre Cable (ii) Radio wave (iii) Bluetooth (iv) Satellite Ans Optical Fiber(guided media or wired media)
What is HTML? Ans HTML (Hyper Text Markup Language) is used to create Hypertext documents (web pages) for websites.	Name the protocol that is used to upload and download files on internet. Ans FTP or HTTP
Your friend kaushal complaints that somebody accessed his mobile device remotely and deleted the important files. Also he claims that the password of his social media accounts were changed. What crime was Manoj a victim of? Also classify the crime on basis of it's intent (malicious / non-malicious). Ans The gaining of unauthorized access to data in a system or computer is termed as hacking. It can be classified in two ways: (i) Ethical Hacking (ii)Cracking	Which is not a network topology? a)BUS b). STAR c). LAN d). RING Ans (c) LAN
Which of the following appears harmless but actually performs malicious functions such as deleting or damaging files. (a) WORM (b)Virus (c) Trojan Horse (d)Malwar e Ans (c) Trojan Horse	Name the protocol that is used to send emails. Ans SMTP
Your friend Ranjana complaints that somebody has created a fake profile on Facebook and defaming her character with abusive comments and pictures. Identify the type of cybercrime for these situations. Ans Cyber Stalking / Identity theft	Name The transmission media best suitable for connecting to hilly areas Ans microwave/radiowave
Write the expanded form of Wi-Fi. Ans Wireless-Fidelity	TCP/IP stands for- Ans Transmission Control Protocol/Internet Protocol

An attack that encrypts files in a computer and only gets decrypted after paying money to the attacker. a) Botnet b) Trojan c) Ransomware d) Spam Ans (c) Ransomware	Write the name of topology in which all the nodes are connected through a single Coaxial cable? Ans BUS totplogy
Write full form of VoIP. Ans voice over internet protocol	Expand the term DHCP. Ans Dynamic Host Configuration Protocol
Name the protocol that is used for the transfer of hypertext content over the web. Ans HTTP	In a Multi-National company Mr. A steals Mr. B's intellectual work and representing it as A's own work without citing the source of information, which kind of act this activity be termed as? Ans Plagiarism
Give at least two names for Guided and Unguided Transmission Media in networking. Ans Guided Media: Twisted pair Cable, Coaxial Cable , Fiber Optic Cable Unguided Media: Microwave / Radio wave , Infrared, Satellite	Write the expanded form of Wi-Fi and GSM Ans WiFi : Wireless Fidelity GSM : Global System for Mobile Communication
Rearrange the following terms in increasing order of data transfer rates. Gbps, Mbps, Tbps, Kbps, bps Ans bps, Kbps, Mbps, Gbps, Tbps	Name the protocol that is used to transfer files. Ans FTP
Your friend's mother receives an e-mail to access the additional services of bank at zero cost from some agency asking her to fill her bank details like credit card number and PIN in the form attached to the mail. Identify the type of cybercrime in this situation Ans phishing	Name the fastest available transmission media. Ans Optical Fibre cable(OFC)
Write the expanded form of LAN & MAN. Ans Local Area Network . Metropolitan Area Network	Rearrange the following transmission media in increasing order of data transfer rates. UTP CAT - 5 , UTP CAT – 6, IR, Bluetooth, OFC Ans IR, Bluetooth, UTP CAT - 5, UTP CAT – 6, OFC

Error Related Questions

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

DEF result_even( ):
x = input("Enter a number")
if (x % 2 = 0) :
print ("even number")
	def result_even( ): #def
	x = int(input("Enter a number")) #int
	if (x % 2 == 0) : # ==
	print ("even number")

else: print(“Number is odd”) even ( )	else: print(“Number is odd”) result_even( ) #function_name()

def checkval:
x = input("Enter a number")
if x % 2 =0:
print (x, "is even")
elseif x<0:
print (x, "should be positive")
else;
print (x, "is odd")
	def checkval( ): #()
	x = int(input(“Enter a number”)) #int()
	if x % 2 =0:
	print (x, "is even")
	elif x<0: #elif
	print (x, "should be positive")
	else**:** **# colon**
	print (x, "is odd")

30=To
for K in range(0,To)
IF k%4==0:
print (K*4)
Else:
print (K+3)
	To=30 #variable on left
	for K in range(0,To)**:** # colon
	if K%4==0: # K capital
	print(K*4)
	else: #else ‘e’ small
	print(K+3)

for name in [‘Shruthi’,’Priya’,’Pradeep’,’Vaishnav’):
print name
if name[0] = ‘P’
break
else:
print(‘Over”)
print(“Done”)
	for name in [‘Shruthi’,’Priya’,’Pradeep’,’Vaishnav’]:
	#]
	print (name) # ()
	if name[0] =**=** ‘P’ # ==
	break
	else:
	print(**“**Over”) # ” “
	print(“Done”)

Y=integer(input(“Enter 1 or 10”))
if Y==10
for Y in range(1,11):
print(Y)
else:
for m in range(5,0,-1):
print(thank you)
	Y=int(input(“Enter 1 or 10”)) #int
	if Y==10**:** **#colon**
	for Y in range(1,11): #indentation
	print(Y) #indentation
	else:
	for m in range(5,0,-1):
	print(“thank you”) # “ “ missing

p=30
for c in range(0,p)
If c%4==0:
print (c*4)
Elseif c%5==0:
print (c+3)
else
print(c+10)
	p=30
	for c in range(0,p):
	if c%4==0: #if
	print (c*4)
	elif c%5==0: #elif
	print (c+3)
	else: #colon
	print(c+10)

x=int(“Enter value for x:”)
for y in range[0,11]:
if x=y
print(x+y)
else:
Print x-y
	x=int(input((“Enter value for x:”)) #input
	for y in range(0,11): #round brackets
	if x=**=**y **:** **#**== and colon
	print(x+y)
	else:
	print (x-y) #print()

Def func(a):
for i in (0,a):
if i%2 =0:
s=s+1
else if i%5= =0
	def func(a): #def
	s=m=n=0 #local variable
	for i in (0,a):
	if i%2**=**=0:
	s=s+1

m=m+2
else:
n=n+i
print(s,m,n)
func(15)
	elif i%5= =0: #elif and colon
	m=m+2
	else:
	n=n+i
	print(s,m,n) #indentation
	func(15)

Value=30 for val in range(0,Value) If val%4==0: print (val*4) Elseif val%5==0: print (val+3) Else print(val+10)	Value=30 #val=30 for val in range(0,Value): **#colon** If val%4==0: print (val*4) elif val%5==0: #elif print (val+3) Else : **#else and colon** print(val+10)

Num = int(input("Number:")
s=0
for i in range(1,Num,3)
s+=1
if i%2=0:
print(i*2)
Else
print(i*3)
print (s)
	Num = int(input("Number:")) #)
	s=0
	for i in range(1,Num,3): **#colon**
	s+=1
	if i%2==0: # ==
	print(i*2)
	else: # else and colon
	print(i*3)
	print (s)

DEF execmain():
x = int(input("Enter a number:"))
if (abs(x) = x):
print"You entered a positive number"
else:
x=*-1
print("Number made positive :",x)
execmain()
	def execmain(): #def
	x = int(input("Enter a number:"))
	if (abs(x)== x): # ==
	print("You entered a positive number") #()
	else:
	x*=-1 # *=
	print("Number made positive :",x)
	execmain()

a = 200
b = 33
if b > a
Print("b is greater than a")
elseif a == b:
print(a and b are equal)
else:
print("a is greater than b")
	a = 200
	b = 33
	if b > a: # colon
	print("b is greater than a") # small p of print()
	elif a == b: #elif
	print("a and b are equal") # " "
	else:
	print("a is greater than b")

x=int("enter value of x:")
for i in range[0,10]:
if x=y
print("they are equal")
else:
Print("they are unequal")
	x=int(input("enter value of x:")) #input()
	for i in range(0,10): # ()
	if x==y: # == and colon
	print("they are equal")
	else:
	print("they are unequal")

a,b=0 if(a=b) a+b=c print(z)	a=b=0 # = in place of , if(a==b): # == and colon c=a+b # c=a+b print(c) # c
a=int(input("enter any number")) ar=0 for x in range(0,a,2)	a=int(input("enter any number")) ar=0 for x in range(0,a,2): #colon

ar+=x
if x%2=0:
Print(x*10)
Else:
print(c)
print(ar)
	ar+=x
	if x%2==0: # ==
	print(x*10) # print()
	else: # else
	print(c)
	print(ar)

fee=250
0=i
while fee=<2000:
if fee<=750:
print(fee)
fee=+250
else:
print(("fee*i)
i=i+1
fee=Fee+250
	fee=250
	i=0 # i=0
	while fee<=2000: # <=
	if fee<=750:
	print(fee)
	fee=+250 # +=
	else:
	print(fee*i) # (and “
	i=i+1
	fee=fee+250 # fee

10=step
for e in the range(0,step):
If e%2==0:
print(e+1)
else:
print(e-1
	step=10 # variable on left side
	for e in range(0,step): # extra the
	if e%2==0: # if
	print(e+1)
	else:
	print(e-1) # missing)

str="Welcome to my Blog for s in range[3,9] Print(str(S))	str="Welcome to my Blog” # missing “ for s in range (3,9) **:** **#** () and colon print(str(s)) # print() and small s

For i in Range(10):
if(i==5)
break:
else:
print(i)
continue
	for i in range(10): #for and range
	if(i==5)**:** # colon
	break # no colon
	else:
	print(i)
	continue

a=input("enter any number")
if a%2=0:
print("Even number)
Else
print("Odd number")
	a=int(input("enter any number")) # int()
	if a%2==0: # ==
	print("Even number)
	else**:** **#** else and colon
	print("Odd number")

a=int(Input("enter any number"))
b=int(input("enter any number"))
if a=>b:
print("First number is greater))
else:
Print("Second number is greater")
	a=int(input("enter any number")) # input
	b=int(input("enter any number"))
	if a>=b: # >=
	print("First number is greater")) # “
	else:
	print("Second number is greater") #print

a=int{input("Enter any number")} for i IN range(1:11): print(a,"*",i,"=",a*i)	a=int(input("Enter any number")) # () for i in range(1:11): # in print(a,"*",i,"=",a*i) #indentation

def sum(c)
s=0
	def sum(c)**:** # colon
	s=0 #indentation

for i in Range(1,c+1)
s=s+i
return s
print(sum(5)
	for i in range(1,c+1): # range and colon
	s=s+i # indentation
	return s
	print(sum(5)) #) and indentation

Print("Anuj") For i in range(2,4): for i in Range(3,9): def title() if i=<5	print("Anuj") # print for i in range(2,4): # for for i in range(3,9): #range and indentation def title(): #colon if i=<5: #colon and indentation

N=int(input("Enter any number:"))
S=0
for i in range(1,N,2)
s+=1
if i%2=0:
print("i"*2)
else:
print("i"*3)
print[S]
	N=int(input("Enter any number:"))
	S=0
	for i in range(1,N,2): # colon
	s+=1
	if i%2==0: # == and colon
	print("i"*2)
	else:
	print("i"*3)
	print(S) # ()

L=[1,2,3,4,5,6,7,'a','e'
for i in L:
if i==a
break
else:
print("A")
	L=[1,2,3,4,5,6,7,'a','e'] # missing]
	for i in L:
	if i==a: # colon
	break
	else:
	print("A") #indentation

a={'6': "Amit", '2' : "Sunil" : '3' : "Naina"}
for i in a:
if(int(i)%3=0
print(a(i))
	a={'6': "Amit", '2' : "Sunil" ,'3' : "Naina"} # comma
	for i in a:
	if(int(i)%3==0: # == and colon
	print(a(i)) #indentation

30=max
For N in range(0,max)
IF n%3==0:
print(N*3)
ELSE:
print(N+3)
	max=30
	for N in range(0,max) : **# for and colon**
	if N%3==0: # if and capital N
	print(N*3)
	else: #else
	print(N+3)

def checksum:
x=input("enter a number")
if(x%2==0):
for i range(2*x):
print(i)
loop else:
print("#")
	def checksum(): # missing ()
	x=int(input("enter a number")) #int()
	if(x%2==0):
	for i in range(2*x): #missing in
	print(i)
	else: #else
	print("#")

Salary=4000,
Bonus==8900
For I in range(0,6)
If Bonus>=5000
Print(Salary+400)
Else if Bonus<5000
print(Salary+500)
	Salary=4000,
	Bonus=8900 # single =
	For I in range(0,6) : # colon
	If Bonus>=5000: **#colon**
	print(Salary+400) # small p of print
	elif Bonus<5000: # elif and colon
	print(Salary+500)

else: Print(“ no increment”)	else: Print(“ no increment”)

Find and write the output of the following Python codes:

```
def makenew(mystr):
    newstr = " "
    count = 0
    for i in mystr:
        if count%2 !=0:
            newstr = newstr+str(count)
        else:
            if i.islower():
                newstr = newstr+i.upper()
            else:
                newstr = newstr+i
        count +=1
    newstr = newstr+mystr[:1]
    print("The new string is :", newstr)

#function calling
makenew("sTUdeNT")
```

Ans: The new string is : S1U3E5Ts

```
s="welcome2kv"
n = len(s)
m=""
for i in range(0, n):
    if (s[i] >= 'a' and s[i] <= 'm'):
        m = m +s[i].upper()
    elif (s[i] >= 'n' and s[i] <= 'z'):
        m = m +s[i-1]
    elif (s[i].isupper()):
        m = m + s[i].lower()
    else:
        m = m +'#'
print(m)
```

Ans vELCcME#Kk

```
def display(s):
l = len(s)
m=""
for i in range(0,l):
    if s[i].isupper():
        m=m+s[i].lower()
    elif s[i].isalpha():
        m=m+s[i].upper()
    elif s[i].isdigit():
        m=m+"$"
    else:
        m=m+"*"
print(m)

display("EXAM20@cbse.com")
```

Ans exam$$*CBSE*COM

```
def change(s):
    d = {"UPPER" : 0, "LOWER" : 0 }
    for c in s:
        if c.isupper():
            d["UPPER"] += 1
        elif c.islower():
            d["LOWER"] += 1
        else:
            pass
print("Upper case count :", d["UPPER"])
print("Lower case count :", d["LOWER"])

#function calling
change("School Days are Happy")
```

Ans
Upper case count : 3
Lower case count : 15

```
def Convert(Old):
    l=len(Old)
    New=””
    for i in range(0,1):
        if Old[i].isupper():
            New=New+Old[i].lower()
        elif  Old[i].islower():
            New=New+Old[i].upper()
        elif Old[i].isdigit():
            New=New+”*”
        else:
```

```
def Show(str):
    m=""
    for i in range(0,len(str)):
        if(str[i].isupper()):
            m=m+str[i].lower()
        elif str[i].islower():
            m=m+str[i].upper()
        else: if i%2==0:
            m=m+str[i-1]
        else:
            m=m+"#"
```

```
                New=New+"%"
    return New

    Older = "InDIa@2020"
    Newer=Convert(Older)
    print("New string is: ",Newer)
```

Ans New string is : iNdiA%****

```
        print(m)

Show('HappyBirthday')
```

Ans
hAPPYbIRTHDAY

```
def replaceV(st):
        newstr = '' "
        for character in st:
            if character in 'aeiouAEIOU':
                newstr += '*'
            else:
                newstr += character
        return newstr

st = "Hello how are you"
st1 = replaceV(st)
print("The original String is:", st)
print("The modified String is:", st1)
```

Ans
The original String is: Hello how are you
The modified String is: H*ll* h*w *r* y**

```
def swap(P ,Q):
        P,Q=Q,P
        print( P,"#",Q)
        return (P)

R=100
S=200
R=swap(R,S)
print(R,"#",S)
```

Ans
200 # 100
200 # 200

```
def Display(str):
        m=""
        for i in range(0,len(str)):
            if(str[i].isupper()):
                m=m+str[i].lower()
            elif str[i].islower():
                m=m+str[i].upper()
            else:
                if i%2==0:
                    m=m+str[i-1]
                else:
                    m=m+"#"
        print(m)

Display('Fun@Python3.0')
```

Ans fUN#pYTHONn#

```
Text="Welcome Python"
L=len(Text)
ntext=""
for i in range (0,L):
        if Text[i].isupper():
            ntext=ntext+Text[i].lower()
        elif Text[i].isalpha():
            ntext=ntext+Text[i].upper()
        else:
            ntext=ntext+"!!"
print (ntext)
```

Ans
wELCOME!!pYTHON

```
def mainu():
        Moves=[11, 22, 33, 44]
        Queen=Moves
        Moves[2]+=22
        L=len(Moves)
        for i in range (L):
            print(Queen[L-i-1], "#", Moves [i])

#function calling
mainu()
```

```
s="United Nations"
for i in range(len(s)):
        if i%2==0:
            print(s[i],end= ' ')
        elif s[i]>='a' and s[i]<='z':
            print('*', end= ' ')
        elif s[i]>='A' and s[i] <='Z':
            print(s[i:],end= ' ')
```

Ans

Ans 44 # 11 55 # 22 22 # 55 11 # 44	U * i * e * Nations a * i * n *
tup=(10,30,15,9) s=1 t=0 for i in range(s,4): t=t+tup[i] print(i,":",t) t=t+tup[0]*10 print(t) **Ans** **1 : 30** **130** **2 : 145** **245** **3 : 254** **354**	L =["X",20,"Y",10,"Z",30] CNT = 0 ST = "" INC = 0 for C in range(1,6,2): CNT= CNT + C ST= ST + L[C-1] + "@" INC = INC + L[C] print(CNT, INC, ST) Ans 1 20 X@ 4 30 X@Y@ 9 60 X@Y@Z@
def increment(n): n.append([4]) return n L=[1,2,3] M=increment(L) print(L, M) Ans [1, 2, 3, [4]] [1, 2, 3, [4]]	def display(x=2,y=3): x=x+y y += 2 print(x,y) display() display(5,1) display(9) Ans 5 5 6 3 12 5

mystr="cs2study@"
newstr = " "
count = 0
for i in mystr:
if count%2 !=0:
newstr = newstr+str(count)
else:
if islower(i):
newstr = newstr+upper(i)
else:
newstr = newstr+i
count +=1
newstr = newstr+mystr[:1]
print ("The new string is :",newstr)
 	
Ans
The new string is : CcSc2c1c1c1c1c1c1c
	data=['d','o',' ','k','t',' ','@',' ','1','2','3',' ','!']
	for i in range(len(data)-1):
	if(data[i].isupper()):
	data[i]=data[i].lower()
	elif(data[i].isspace()):
	data[i]=data[i+1]
	print (data)
	
	Ans
	['d', 'o', 'k', 'k', 't', '@', '@', '1', '1', '2', '3', '!', '!']

RANDOM MODULE

randint() – function takes starting and ending values both

randrange()-function takes only starting value and ending-1 value

random()-generates decimal values between 0 and 1 but not include 1

What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the minimum values that can be assigned to each of the variables BEGIN and LAST. import random VALUES = [10, 20, 30, 40, 50, 60, 70, 80] BEGIN = random.randint (1, 3) LAST = random.randint(2, 4) for I in range (BEGIN, LAST+1): print (VALUES[I], end = "-") (i) 30-40-50- (ii) 10-20-30-40- (iii) 30-40-50-60- (iv) 30-40-50-60-70- Ans OUTPUT – (i) 30-40-50- Minimum value of BEGIN: 1 Minimum value of LAST: 2	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. 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): print (AR[K],end="#") (i)10#40#70# (ii)30#40#50# (iii)50#60#70# (iv)40#50#70# Ans Maximum value of FROM = 3 Maximum value of TO = 4 (ii) 30#40#50#
Consider the following code: import math import random print(str(int(math.pow(random.randint(2,4),2)))) print(str(int(math.pow(random.randint(2,4),2)))) print(str(int(math.pow(random.randint(2,4),2)))) What could be the possible outputs out of the given four choices? i) 2 3 4 ii) 9 4 4 iii)16 16 16 iv)2 4 9 Ans Possible outputs : ii) , iii) randint will generate an integer between 2 to 4 which is then raised to power 2, so possible outcomes can be 4,9 or 16	Consider the following code and find out the possible output(s) from the options given below. Also write the least and highest value that can be generated. import random as r print(10 + r.randint(10,15) , end = ' ') print(10 + r.randint(10,15) , end = ' ') print(10 + r.randint(10,15) , end = ' ') print(10 + r.randint(10,15)) i) 25 25 25 21 iii) 23 22 25 20 ii) 23 27 22 20 iv) 21 25 20 24 Ans Possible outputs : i), iii) and iv) Least value : 10 Highest value : 15
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 BEG and END. import random heights=[10,20,30,40,50] beg=random.randint(0,2) end=random.randint(2,4) for x in range(beg,end): print(heights[x],end='@') (a) 30 @ (b) 10@20@30@40@50@ (c) 20@30 (d) 40@30@	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 Lower and Upper. import random AR=[20,30,40,50,60,70] Lower =random.randint(1,4) Upper =random.randint(2,5) for K in range(Lower, Upper +1): print (AR[K],end="#") (i) 10#40#70# (ii) 30#40#50# (iii) 50#60#70# (iv) 40#50#70#

Ans (a) & (b) Maximum value of BEG: 2 Maximum value of END: 4	Ans (i) ,(ii) and (iii)
What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code? 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="#") (i) 10#40#70# (iii) 50#60#70# (ii) 30#40#50# (iv) 40#50#70# Ans (ii) 30#40#50#	What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code. Select which option/s is/are correct import random print(random.randint(15,25) , end=' ') print((100) + random.randint(15,25) , end = ' ') print((100) -random.randint(15,25) , end = ' ') print((100) *random.randint(15,25)) (i) 15 122 84 2500 (ii) 21 120 76 1500 (iii) 105 107 105 1800 (iv) 110 105 105 1900 Ans (i) (ii) are correct answers.
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 values that can be assigned to the variable End . import random Colours = ["VIOLET","INDIGO","BLUE","GREEN", "YELLOW","ORANGE","RED"] End = randrange(2)+3 Begin = randrange(End)+1 for i in range(Begin,End): print(Colours[i],end="&") (i) INDIGO&BLUE&GREEN& (ii) VIOLET&INDIGO&BLUE& (iii) BLUE&GREEN&YELLOW& (iv) GREEN&YELLOW&ORANGE& Ans (i) INDIGO&BLUE&GREEN& Minimum Value of End = 3 Maximum Value of End = 4	What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? import random X= random.random() Y= random.randint(0,4) print(int(),":",Y+int(X)) (i) 0:5 (ii) 0:3 (iii) 0:0 (iv) 2:5 Ans (ii) and (iii)
import random x=random.random() y=random.randint(0,4) print(int(x),":",y+int(x)) Choose the possible output(s) from the given options. Also write the least and highest value that may be generated. (i) 0:0 ii.) 1:6 iii.) 2:4 iv.) 0:3 **Ans min value of x 0.01 and max value will be 0.99899** **Min value of y 0 and max value will be 4** **Corrected options will be (i) and (iv)**	(e) Observe the following Python code and find out which of the given options (i) to (iv) are the expected correct output(s). Also, assign maximum and minimum values that can be assigned to the variable 'Go'. import random X=[100,75,10,125] Go =random.randint(0,3) for i in range(Go): print(X[i],"$$") (i) 100$$ (ii) 100$$ 75$$ 99$$

	10$$ (ii) 150$$ (iv) 125$$ 100$$ 10$$ Ans (i) 100 $$ 75$$ 10$$

import random
pick=random.randint(0,3)
city=["delhi","mumbai","chennai","kolkata"]
for i in city:
  for j in range(1,pick):
  print(i,end=" ")
 	
Ans
delhi mumbai chennai Kolkata
 	
delhi delhi mumbai mumbai chennai chennai kolkata kolkata
	import random
	p='my program'
	i=0
	while p[i]!='y':
	  t=random.randint(0,3)+5
	  print(p[t],'-')
	  i=i+1
	
	Ans
	g –O- r- a-
	order can vary but print only these 4 characters

import random
sel=random.randint(0,3)
animal=["deer","monkey","cow","kangaroo"]
for a in animal:
  for aa in range(1,sel):
  print(a, end="")
  print()
 	
Ans
deer
monkey
cow
kangaroo
 	
or
 	
deer
deer
monkey
monkey
cow
cow
kangaroo
kangaroo
	import random
	picker=random.randint(0,3)
	color=["blue","pink","green","red"]
	for i in color:
	  for j in range(1,picker):
	  print(i, end="")
	  print()
	
	Ans
	blue
	pink
	green
	red
	
	or
	
	blue
	blue
	pink
	pink
	green
	green
	red
	red

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 first, second and third. from random import randint LST=[5,10,15,20,25,30,35,40,45,50,60,70] first = randint(3,8)	

```
second = randint(4,9)
third = randint(6,11)
print(LST[first],"#", LST[second],"#", LST[third],"#")
```

(i) 20#25#25# (ii) 30#40#70# (iii) 15#60#70# (iv) 35#40#60#

Ans 35#40#60#

Maximum Values: First: 40, Second: 45, Third: 60