



STUDY MATERIAL CLASS XII (2020-21)

Subject: Computer Science (083)

CHAPTER WISE QUESTION BANK

Foreword

Preparation of study material for all the major subjects of class X and XII and presenting the same on the hands of the students well on time is not anything new for the Kendriya Vidyalayas. However, this time the backdrop of the Covid-19 pandemic looming large in front of all and the 9 months of suspended physical classes have given an extra novel meaning and significance to this endeavor. On all previous occasions, teachers sat together on a designated place face to face to discuss, to reject, to select & modify and thereby gather together the best material for the students. This time, they could not do so that way because of the limitations of gatherings in light of the pandemic. And therefore, this time, there has been the endeavor to craft out a chapter-wise exhaustive question bank for all the major subjects. The major chunk of the session has already played out in the most extraordinary way during this most extraordinary time as we have all seen, with the syllabi having been covered only through online classes with the teachers and the students never coming face to face inside the classrooms.

Anyway, with our examination system the way it is, the role of intelligent and rigorous study of question bank has been always enormous for success in all examinations. Having a sound grasp of probable questions and the most pertinent ones, leads to better negotiation of the course material on hand especially when the examination comes near.

It is hoped that the teachers of each school will bring the materials home to the needy students with further necessary guidance from them during this extraordinary academic session and extraordinary time as a whole.

It has been wonderful for KVS RO Guwahati to be involved in preparation of study material in the form of chapter wise question banks. The enormous contribution of the Subject teachers and Principals for making the project successful is highly praiseworthy.

Message from Deputy Commissioner KVS Guwahati Region

It has been a matter of immense pleasure for me to be involved in the preparation of study material in the form of chapter wise question bank for different subjects for KVS Guwahati Region. Knowledge gathered on any subject is paramount to success in our academic system, the same gets tested through questions of different grades asked in examinations. Therefore, to be pre-acquainted and familiarized with the nature of questions that will be asked in Board examinations might go a long way in having the right and absolute answers for scoring in the examinations. Sound knowledge of probable and pertinent questions for a chapter leads to much better grasp of the course material for the purpose of tackling the examination especially at a time when it is near. The students will be benefitted immensely through proper study of a question bank for any subject especially in the run-up to the examination.

Of course, at a time, when our students and the teachers have not been able to come face to face physically inside their classrooms in the school because of the scourge of COVID- 19 pandemic, and the syllabi having been already covered through online classes only, there is no doubt that our students would need to depend upon the written words of the teachers a bit more and in that way, the study of material in the form of question bank would need real earnestness from the students.

I would like to thank all, especially the Principals and the teachers for giving finality to this project preparing question bank of across all the subjects.

(Varun Mitra)
Deputy Commissioner

Message from Assistant Commissioner KVS Guwahati Region

Study material prepared by Teachers of Guwahati Region under the Leadership and able Guidance of Sh. Varun Mitra, Deputy Commissioner, KVS (RO) Guwahati and efforts done by Sh. Venkteswar Prasad B, Assistant Commissioner, KVS (RO) Guwahati with the help of learned teachers of Guwahati Region is step to help students of Guwahati Region to revise their syllabus in less time. This study material is readable material having question bank, which will help students to gain knowledge and to know how questions are asked in board exams and how to write to the point answers to score good marks. This will enable students to improve their performance.

I convey my best wishes to students of Guwahati region for their board exams.

I convey my best wishes to teachers of Guwahati region for good results both qualitative and quantitative.

I convey my best wishes to principals of Guwahati region for good academic performance of all students of their Kendriya Vidyalaya in all subjects.

(Deepak Kumar Dabral)

Assistant Commissioner

Message from Assistant Commissioner KVS Guwahati Region

Dear students.

This year had been rather challenging due to the covid-19 pandemic which initially had made life come to a standstill with the imposition of the lockdown. Things looked bleak in the realm of academics and education. What brought the glimmer of hope was the continuation of the teaching-learning process in the online mode. Initially everyone was sceptical regarding the outcome and quality of such a system, but the teachers by dint of their dedication, hard-work and their sense of duty took things in their stride. Now, the online mode has become the new normal and this change has marked a paradigm shift in how education is imparted.

The ones most affected by the absence of conventional offline classrooms were the students of Class X and XII. With the Board exams looming large in their minds they desperately needed some personal guidance and quality resource material. It is keeping in mind their needs, KVS RO Guwahati decided to bring up study material in all subjects that would cater to the needs of the upcoming Board examinees. This study material prepared by some very resourceful and experienced teachers of the region will serve as the beacon to the students and would guide them to prepare for the exams in a systematic and planned way. The lessons and important topics have been covered in a concise yet comprehensive manner so that they facilitate easy understanding by all the students. All the key concepts have been covered in keeping with the requirements of the Board Exams.

It is expected of students to approach the material in a systematic and organised manner. They have to read it thoroughly, look for information that is vital from the viewpoint of examination, ensure that key points are firmly etched into their minds, go through the exercises and questions and practice enough for time management. I hope this study material will prove to be an effective tool in the preparation for their Board Exams and boost the confidence of the students to perform better.

I am thankful to Sh. Varun Mitra, Honourable Deputy Commissioner KVS RO Guwahati for his constant support and guidance given for the preparation of study material. My heartfelt thanks to Sh. Deepak Kumar Dabral, Assistant Commissioner KVS RO Guwahati, Principals and Teachers of Kendriya Vidyalayas of Guwahati Region who have put in enormous efforts in making this study material for the benefit of students.

Happy learning and best of luck!

(Venkteswar Prasad B) Assistant Commissioner

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KVS RO GUWAHATI

COMPUTER SCIENCE (083) – XII Question Bank (Session 2020-21)

CHAPTER - PYTHON REVISION TOUR- I

1 How will you convert a string to all lowercase?

Ans: To convert a string to lowercase, lower() function can be used.

Example:

- 1 stg='ABCD'
- 2 print(stg.lower())

Output: abcd

What are negative indexes and why are they used?

Ans: The sequences in Python are indexed and it consists of the positive as well as negative numbers. The numbers that are positive uses '0' that is uses as first index and '1' as the second index and the process goes on like that.

The index for the negative number starts from '-1' that represents the last index in the sequence and '-2' as the penultimate index and the sequence carries forward like the positive number.

The negative index is used to remove any new-line spaces from the string and allow the string to except the last character that is given as S[:-1]. The negative index is also used to show the index to represent the string in correct order.

- 3 Special meaning words of Pythons, fixed for specific functionality are called
 - 1. Identifiers
 - 2. functions
 - Keywords √
 - 4. literals
- 4 Names given to different parts of a Python program are
 - Identifiers √
 - 2. functions
 - 3. Keywords
 - 4. literals

	۷.	Tunctions
	3.	Keywords
	4.	literals ✓
6	Which	of the following is/are correct ways of creating strings ?
	1.	name = Jiya
	2.	name = 'Jiya' √
	3.	name = "Jiya" ✓
	4.	name = (Jiya)
7	Which	of the following are valid identifiers ?
	1.	my name
	2.	_myname ✓
	3.	myname √
	4.	my-name
8	Which	of the following are literals ?
	1.	myname
	2.	"Radha" ✓
	3.	24.5 √
	4.	24A
9	Escape	e sequences are treated as
	1.	strings
	2.	characters ✓
	3.	integers
	4.	none of these
10	Value	17.25 is equivalent to
	1.	0.1725E-2
	2.	0.1725E+2 √
	3.	1725E2
	4.	0.1725E2 √
12	Select	the reserved keyword in Python.
	1.	else

Data items having fixed value are called

1. Identifiers

5

- 2. import
- 3. print
- 4. all of these ✓
- To convert the read value through input() into integer type,() is used.
 - 1. floating
 - 2. float
 - 3. **int** √
 - 4. integer
- 14 What are tokens in Python? How many types of tokens are allowed in Python? Examplify your answer.

Answer

The smallest individual unit in a program is known as a Token. Python has following tokens:

- 1. **Keywords** Examples are import, for, in, while, etc.
- 2. **Identifiers** Examples are MyFile, _DS, DATE_9_7_77, etc.
- 3. Literals Examples are "abc", 5, 28.5, etc.
- 4. **Operators** Examples are +, -, >, or, etc.
- 5. **Punctuators** ' " # () etc.
- 15 Can nongraphic characters be used in Python ? How ? Give examples to support your answer.

Answer

Yes, nongraphic characters can be used in Python with the help of escape sequences. For example, backspace is represented as \b, tab is represented as \t, carriage return is represented as \r.

16 Which of these is not a legal numeric type in Python? (a) int (b) float (c) decimal.

Answer

decimal is not a legal numeric type in Python.

17 What are operators? What is their function? Give examples of some unary and binary operators.

Answer

Operators are tokens that trigger some computation/action when applied to variables and other objects in an expression. Unary plus (+), Unary minus (-), Bitwise complement (~), Logical negation (not) are a few examples of unary operators. Examples of binary operators are Addition (+), Subtraction (-), Multiplication (*), Division (/).

Answer

In Python, a variable is not created until some value is assigned to it. A variable is created when a value is assigned to it for the first time. If we try to use a variable before assigning a value to it then it will result in an undefined variable. For example:

```
print(x) #This statement will cause an error for undefined variable x
x = 20
print(x)
```

The first line of the above code snippet will cause an undefined variable error as we are trying to use x before assigning a value to it.

19 What is the error in following code: X, Y = 7?

Answer

The error in the above code is that we have mentioned two variables X, Y as Lvalues but only give a single numeric literal 7 as the Rvalue. We need to specify one more value like this to correct the error:

20 Predict the output

```
a, b, c = 10, 20, 30
p, q, r = c - 5, a + 3, b - 4
print ('a, b, c :', a, b, c, end = '')
print ('p, q, r :', p, q, r)
```

Output

```
a, b, c : 10 20 30p, q, r : 25 13 16
```

21 Find the errors in following code fragment:

```
c = input( "Enter your class" )
print ("Last year you were in class") c - 1
```

Answer

There are two errors in this code fragment:

- 1. c 1 is outside the parenthesis of print function. It should be specified as one of the arguments of print function.
- 2. c is a string as input function returns a string. With c 1, we are trying to subtract a integer from a string which is an invalid operation in Python.

The corrected program is like this:

```
c = int(input( "Enter your class" ))
print ("Last year you were in class", c - 1)
```

Write a program that displays a joke. But display the punchline only when the user presses enter key.

(Hint. You may use input())

```
print("Why is 6 afraid of 7?")
input("Press Enter")
print("Because 7 8(ate) 9 :-)")
```

Questions based on Python Revision Tour – II (String, List, Tuple and Dictionary)

(From this portion as per sample paper all the Questions are of 1 mark)	From this p	ortion as pe	r sample pa	per all the (Questions are	e of 1 mark)
---	-------------	--------------	-------------	---------------	---------------	--------------

•	As basic questions	s will be asked fr	om this porti	on so all the question	
Q1.	Following set of co >>>str="welcome" >>>str[:3]		cuted in Pytho	n shell ,what will be tl	ne output ?
	(a) wel	(b) ome	(c) wce	(d) welcome	
Q2.	What is the data t L=1,4,'thanks',34	type for the obje	ect L below in	python?	
	(a) list	(b) dictionary	(c) tuple	(d) array	
Q3.	To store value in t	erms of key and (b) tuple	l value , what (c) class	core data type does Py (d) dictionary	thon provide?
Q4.	_	expression produ		result except one. Whi [: :6] (d) str[0] + str[-1]	
Q5.	What is the output str1="hello" str2="world" print(str1+str2.up		ng code segme	ent?	
	(a) helloworld (c) helloWORLD	·	o) HELLOWOR d) HELLO WOI		
	(6)	(o,		
Q6.	Suppose a tuple T incorrect? a) print(T[1]) b) T[2] = -29 c) print(max(T)) d) print(len(T))	is declared as T	= (10, 12, 43,	39), which of the follo	wing is
Q7.	Identify the valid L = ['he	declaration of L: llo', '28.6', 'wor			
	a. dictionary	b. string	c.tuple	d. list	
Q8.	If the following on name="Computer print(name[3:10])	SciencewithPytl		be the output of the	following code?

Q9. A tuple is declared as

$$T = (12,4,7,8,5)$$

What will be the value of sum(T)

Q10. To store in terms of key and value, what core data type does python provide?

- (a) list
- (b) tuple
- (c) class
- (d) dictionary

Q11. Write a statement in Python to declare a dictionary whose keys are 1, 2, 3 and values are January, February and March respectively.

Q12. Given the lists L=[10,30,16,8,50,17,12,42], write the output of print(L[2:5])

Q13. Write the output of the following code

```
T= (10,30,15,20,25)
```

print(max(T))

print(min(T))

Q14. Write the output of the following code

print(max(T))

print(min(T))

Q15. Write the output of the following code

print(len(L))

Q16. Which of the following is wrong dictionary declaration?

- (a) d= {"mon": 1, "tue": 2, "wed": 3}
- (b) d= {1 : "mon", 2 : "tue", 3 : "wed"}
- (c) d= {[1,2] : "hello"}
- (d) d= {(1,2) : "hello"}

Answer Key

1.(a) 9. 36 2. (c) 10. (d)

3.(d) 11. Month={1:'january',2:'february',3:'march'}

4.(a) 12. [16, 8, 50]

5(c) 13. 30

10

6.(b) 14. r

Р

7.(d) 15. 5 8. puterSc 16.(c)

TOPIC: Python Library

Q. No	Part A	Marks
1.	Which python libraries/module need to be imported to use the following functions: (i)float() (ii) randint()	1
2.	Which python libraries/module need to be imported to use the following functions: (i)range	1
3.	Which python libraries/module need to be imported to use the following functions: (i)str ()	1
4.	What would be output produced by following code:	1
	<pre>import math import random print(math.ceil(random.random()))</pre>	
5.	Name the Python Library modules which need to be imported to invoke the following functions :	1
	1. load () 2. pow ()	
6.	Name the Python Library modules which need to be imported to invoke the follwing functions :	1
	 sqrt() dump() 	

TOPIC-Functions in Python

Q.No	Question	Answer
	SECTION -I-PART A	1 mark question
1.	Name the built-in mathematical funct that is used to return an absolute value	•
2.	Name the built-in mathematical funct that is used to return maximum value in	•
3.	Name the built-in mathematical funct that is used to return min value in a list	
4.	Name the built-in mathematical funct that is used to round the numbers	ion / method round
5.	Mention the output of the following Pyt len(["hello",2,4,6])	chon function: 4
6.	Name the key word used for defining a	function def
	SECTION -I-PART B	2 marks
7.	Differentiate between Positional Argument and Default Argument of function in python with suitable example	Positional arguments are arguments that can be called by their position in the function definition. Python allows function arguments to have default values; if the function is called without the argument, the argument gets its default value. def function(a, b, c): print(a,b,c) A positional argument is passed to the function in this way. function(1,2,3) will print 123
8.	What is the meaning of return value of a function? Give an example to illustrate its meaning.	def function(a, b, c=3): print(a,b,c) function(1,2) will print 1 2 3 The Python return statement is a special statement that you can use inside a function or method to send the function's result back to the caller. A return statement consists of the return keyword followed by an optional return value. def calc_sum(a,b): return a+b sum_val=calc_sum(2,3)

print(sum val)

This program will print:

9. Deferentiate between parameters and arguments in Python. Mention a suitable example

A parameter is the variable listed inside the parentheses in the function definition. An argument is the value that are sent to the function when it is called.

def calc sum(a,b):

return a+b

sum val=calc sum(2,3)

print(sum val)

Here calc sum(a,b) -> a and b are parameters calc_sum(2,3) -> 2 and 3 are arguments

10. Mention the output:

def print hello():

print("Hello") print hello()

print hello()

11. Differentiate between Global and Local variable with a suitable example

Local variables can be accessed only inside the function in which they are declared, whereas global variables can be accessed throughout the program body by all functions

x = 10

Hello

Hello

def local chk():

y=5

Here x is global variable and y is local variable.

3 marks

SECTION-II

12. Write a function check_pos_neg(num) which takes a number from the user and prints whether the number is Zero or positive or negative

def check_pos_neg(num):

if num==0:

print("The number is Zero")

elif num <0:

print("The number is Negative")

else:

print("The number is Positive")

num=int(input("Enter a number:"))

check pos neg(num)

13. Write a function even odd(num) which takes a number and checks

whether the number is even or odd

def even odd(num):

if num%2==0:

print("Number is even")

print("Number is odd")

num=int(input("Enter the Number:"))

even odd(num)

14. Write a function compute_len(strinp) which takes a string and returns the def compute_len(strinp):

return len(strinp)

	length of the string	<pre>str_a=input("Enter the String:") compute_len(str_a)</pre>	
15.	Write a function comp_sum(lista) which takes a list of integers and return the sum Topic: Py	def comp_sum(lista): total=0 for i in lista: total+=i return total listinp=eval(input("Enter list:")) print(comp_sum(listinp)) rthon Library	
No	Part A	N	/larks
7.	Which python libraries/module need following functions: (i)float() (ii) randint()	to be imported to use the	1
8.	Which python libraries/module need following functions: (i)range	to be imported to use the	1
9.	Which python libraries/module need following functions: (i)str ()	to be imported to use the	1
10.	What would be output produced by follows	owing code:	1
	import math import random print(math.ceil(random.random()))		
11.	Name the Python Library modules wi invoke the following functions :	nich need to be imported to	1
	3. load () 4. pow ()		
12.	Name the Python Library modules which invoke the following functions:	nich need to be imported to	1
	 sqrt() dump() 		

Q.

QUESTIONS ON TEXT FILE HANDLING

9	A text file "Quotes.Txt" has the following data written in it: Living a life you can be proud of Doing your best	3
	Spending your time with people and activities that are important to you Standing up for things that are right even when it's hard	
	Becoming the best version of you	
	Write a user defined function to display the total number of words	
	present in the file.	
10	Write a method in python to write multiple lines of text contents into a	3
	text file myfile.txt	
11	Write a python program to copy file1.txt into file2.txt	3
12	Which of the following function returns a list datatype	1
	A) d=f.read() B) d=f.read(10)	
	C) d=f.readline()	
	D) d=f.readline()	
13	Write a single loop to display all the contens of a text file file1.txt after	2
13	removing leading and trailing WHITESPACES	_
14	Observe the following code and answer the follow	2
	f1=open("mydata","a")	
	#blank1	
	f1.close()	
	(i)what type of file is mydata	
	(ii) Fill in the blank1 with statement to write "abc" in the file "mydata"	
15	A given text file data.txt contains :	2
	Line1\n	
	\n ·	
	line3	
	Line 4	
	\n	
	line6	
	What would be the output of following code?	
16	In which of the following file modes the existing data of the file will not	2
	be lost?	
	i) rb	
	ii) w	
	iii) a+b	
	iv) wb+	
	v) r+	
	vi) ab	
	vii) w+b	
	viii)wb	

ix) w+

```
17
                                                                                                  2
              What would be the data types of variables data in following statements?
              i) Data=f.read()
              ii) Data=f.read(10)
              iii) Data=f.readline()
              iv)Data=f.readlines()
ANSWERS
          9
                       def countwords():
                       S=open("Mydata", "r")
                       f=S.read()
                       z=f.split()
                       count=0
                       for I in z:
                       count=count+1
                       print("Total number of words",count)
          10
                       def write1():
                       f = open("myfile.txt","w")
                       while True:
                       line = input("Enter line")
                       f.write(line)
                       choice = input("Are there more lines")
                       if choice == "N":
                       break
                       f.close()
          11
                       fin=open("file1.txt")
                       fout=open("file2.txt","w")
                       data=fin.read()
                       fout.write(data)
                       fin.close()
                       fout.close()
          12
                       d) f.readlines()
          13
                       for line in open("file1.txt"):
                           print(line.strip())
          14
                       i) Text file
                       ii) f1.write("abc")
          15
                       Line1
                       Line3
                       Line 6
```

Line 4

	17	a) string	b)string QUESTIONS ON CSV F	c)string FILE HANDLING	d)list
Q1. ANS		full form of CS eparated value			
Q2. ANS	A	is a file forr	mat which stores records	s separated by comma.	
Q.3 ANS	One row o	of CSV file can b	oe considered as	_ in terms of database	
Q4 ANS	The write CSV	row() function	is a part of m	odule.	
Q5 ANS	A f writerow		to write a single record i	nto each row in CSV file.	
Q6	Which of 1. readli 2. writer 3. reade 4. writer	ne() row() r()	not a function of csv mo	odule?	
ANS	readline()				
Q7	CSV modu	ule allows to wr	ite multiple rows using _	function.	
ANS	writerrow	/s()			
Q8 ANS	1.	ways to import import csv from csv imp			
Q9 ANS		•	uired to handle CSV files wing function required:	5.	
	 Op re wi wi clo 	ader() riter() riterow()			
Q10.	The defau	ılt line terminat	cor is \n in csv file.		
ANS	True				

ab and a+b mode

Data Visualization using pyplot (OUT OF SYLLABUS FOR 2020-21)

Q1 What is data visualization? Ans Data Visualization refers to the graphical or visual representation of information and data using visual elements like chart, graph, map etc. Q2 How data visualization is useful? Ans Data visualization can display patterns, trends, correlation, outliers using chart, graphs, pie etc that helps in decision making in business firms. Q3 Is Python useful in Data Visualization? Python is a very powerful programming language that support Data Visualization Ans utilities. It may be used for various business applications. Q4 What is Pyplot? Ans Pyplot is a collection of methods within matplotlib library of Python. Q5 What is matplotlib? Matplotlib is a high quality plotting library of Python. Ans Q6. How to install matplotlib in Python? We can install matplotlib using pip command when internet is connected to our Ans computer system. Q7. Is Anaconda Python required matplotlib installation? NO, Anaconda Python is not required to installed. When we install Anaconda Python, Ans it install automatically. Q8. Write down commands to install matplotlib in Python. python -m pip install -u pip Ans python -m pip install -u matplotlib Q9. What are the ways to import pyplot in Python program? Ans import matplotlib.pyplot or import matplotlib.pyplot as plt 10 Which function is used to draw line chart in Python? Ans plot() 11 Which function is used to display line chart on screen in Python? Ans Show() 12 Which function is used to specify x axes label in chart? xlabel() Ans

13 Which function is used to specify y axes label in chart?

Ans ylabel()

14 Which function is used to specify title of chart?

Ans title()

Q15 What is line chart? Write a program to draw a line chart in Python.

Ans A line chart or line graph is a type of chart which displays information as a series of data points called markers connected by straight line segments.

A python program to create a line chart

import matplotlib.pyplot as plt

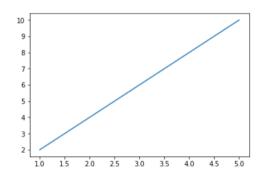
a=[1,2,3,4,5]

b=[2,4,6,8,10]

plt.plot(a,b)

plt.show()

It shows chart like:



Q16 Draw a line graph that shows title, x-axes label and y axes label.

Ans import matplotlib.pyplot as plt

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

b=[2,4,6,8,10]

plt.title("My line chart")

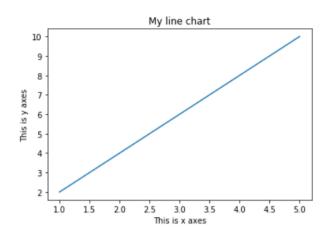
plt.xlabel("This is x axes")

plt.ylabel("This is y axes")

plt.plot(a,b)

plt.show()

It will look like:



Q17 What is Bar Chart?

Ans A Bar Chart/Graph is a graphical display of data using bars of different heights.

Q18 Which function is used to draw a bar graph in Python?

Ans bar()

Q19 Which Python object can be used for data in bar graph?

Ans List can be used for data in bar graph.

Q20 Draw a bar graph in Python.

Ans import matplotlib.pyplot as plt

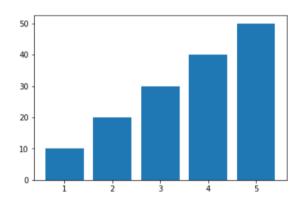
xdata=[1,2,3,4,5]

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

plt.bar(xdata,ydata)

plt.show()

it will show bar graph like:



Q21 How to add x axes, y axes label and title of bar graph? Show with an example.

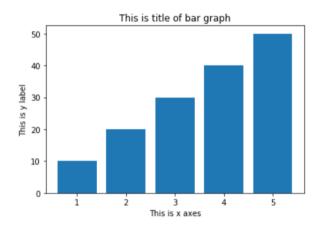
Ans import matplotlib.pyplot as plt

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

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

plt.xlabel("This is x axes")
plt.ylabel("This is y label")
plt.title("This is title of bar graph")
plt.bar(xdata,ydata)
plt.show()

it will show like:



Q22 What is histogram?

Ans Histogram is a type of graph that is widely used in Maths or in Statistics. The histogram represents the frequency of occurrence of a specific phenomenon which lie within a specific range of values, which are arranged in consecutive and fixed intervals.

Q23 Which function is used to plot histogram?

Ans matplotlib.pyplot.hist()

Topic – Data Structures I (Linear List)

Q. No.	Question	Marks
1.	What is Data Structure?	2
Ans.	Data Structure is a way of organizing and storing data in such a	
	manner so that it can be accessed and work over it can be done	
	efficiently and less resources are required.	
2.	Define the term Linear List?	2
Ans.	Linear Lists or Arrays refer to a named list of a finite number nof	
	similar data type elements.	
3.	What are the different LIST operations (Any four)?	2
Ans.	 Search Insert Delete Traverse Sorting Merging 	1
4.	What will be the output of the following Python code snippet? L = [10, 20, 30, 40, 50] Print(L[2:5])	1
Ans.	30, 40, 50	
5.	What is the purpose of list.clear() method?	2
Ans	Empty all the list	

Topic – Data Structures II (Stacks)

Q. No.	Question	Marks
1.	A STACK is a linear structure implemented in manner?	1
	a) LIFO	
	b) FIFO	
	c) FILO	
	d) None of the above	
Ans.	a) LIFO (Last in First Out)	
2.	Define PUSH and POP operations in STACKS?	2
Ans.	PUSH – To insert an element on top of the STACK.	
	POP – To delete an element from top of the STACK.	
3.	Define the term OVERFLOW in STACKS?	1
Ans.	OVERFLOW is an ERROR condition, when a STACK, implemented as	
	list/array of fixed size, is full and no new element can be inserted.	
4.	Which of the following is an Application of STACK?	1
	a) Finding Factorial	
	b) Reversing a STRINGc) Infix to Postfix conversion	
	c) Infix to Postfix conversiond) All of the above	
Ans.	d) All of the above	
5.	Convert the following Infix expression into a postfix expression?	2
	(A-B) * (C/D) + E	
Ans	POSTFIX Expression - AB – CD /*E	

	Unit II: Computer Networks
Netv	ution of Networking: ARPANET work Protocol: TCP/IP, File Transfer Protocol (FTP), PPP, HTTP, SMTP, POP3, Remote Login net) and Internet, Wireless / Mobile Communication protocol such as GSM, GPRS and WLL.
Que	stions:
1.	What is name of first computer network? a. Internet b. NIC c. ARPANET d. NSFNET
	Ans. C
2.	Write the full form of ARPANET.
	Ans American Research Project Agency Network
3.	What do you mean by computer network?
	Ans A computer network is a collection of interconnected autonomous computing devices so as to exchange information or share resources.
4.	What do you mean by internet?
	Ans Network of networks is called internet. Or The internet is the world-wide network of computer networks.
5.	Set of rules and regulations used while communication/transmission is a. Topology b. Gateway c. Protocol d. Bandwidth
	Ans. C
6.	Expand the following terms: i. HTTP – Hyper Text Transfer Protocol

TCP/IP – Transmission Communication Protocol/Internet Protocol

FTP – File Transfer Protocol

SLIP – Serial Line Internet Protocol PPP – Point to Point Protocol

IMAP – Internet Message Access Protocol

ii. iii.

iv.

٧.

vi.

- vii. POP3 Post of Protocol 3
- viii. SMTP Simple Mail Transfer Protocol
- ix. IRC Internet Relay Chat
- x. SIP Session Initiation Protocol
- xi. VoIP Voice over Internet Protocol
- 7. Name the protocols used in Email.

Ans.-

- i. IMAP Internet Message Access Protocol
- ii. POP3 Post of Protocol 3
- iii. SMTP Simple Mail Transfer Protocol
- iv. HTTP Hyper Text Transfer Protocol
- 8. Name the protocol that is used to transfer files from one system to another.

Ans.-

FTP - File Transfer Protocol

- 9. Which one is chat protocol
 - a. HTTP
 - b. IRC
 - c. SMTP
 - d. VoIP

Ans.- b

10. Write a short note on VoIP.

Ans.-

VoIP is technology that enables voice communication over the internet through the compression of voice in data packets and vice versa, that can be transmitted over data networks.

NETWORK CONCEPTS - BASICS

Identify the Network that is limited to the proximity of an individual and covers 1

Section – A

a range from 10 to 20 meters.

1.

	 LAN (Local Area Network) 	
	WAN (Wide Area Network)	
	 PAN (Personal Area Network) 	
	 MAN (Metropolitan Area Network) 	
Ans.	PAN (Personal Area Network)	
2.	TCP/IP stands for –	1
	a) Transmission Communication Protocol / Internet Protocol	
	b) Transmission Control Protocol / Internet Protocol	
	c) Transport Control Protocol / Interwork Protocol	
	d) Transport Control Protocol / Internet Protocol	
Ans.	b) Transmission Control Protocol / Internet Protocol	
3.	Which of the following is a fastest transmission media –	1
	Ethernet Cable	
	Fiber optics Cable	
	Coaxial Cable	
Ans.	Fiber optics Cable	
4.	Write the expanded names for the following abbreviated terms used in	2
	Networking and Communications:	
	(i) MBPS (ii) WAN (iii) CDMA (iv) WLL	
Ans.	(i) MBPS - Mega Bytes per Second OR Mega Bits per second	
	(ii) WAN - Wide Area Network	
	(iii) CDMA - Code Division Multiple Access	
_	(iv) WLL - Wireless in Local Loop	
5.	What is a computer Network?	1
Ans.	Collection of two or more devices connected to each other to share resources.	
6.	What is NIC? Give other name of NIC.	1
Ans.	Stands for Network Interface Card. It is used to connect a computer to a network.	
	Also known as Network Adapter of Ethernet Card.	
7.	Give two differences between 3G and 4G telecommunication technologies.	1
Ans.	Higher download/upload speeds in 4G compared to 3G	
	Greater bandwidth and flexibility in 4G compared to 3G	
	3G is Voice + Data whereas 4G is only Data with voice overriding	
8.	Which is the fastest network from the following?	1
	LAN (Local Area Network)	
	WAN (Wide Area Network)	
_	MAN (Metropolitan Area Network)	
Ans.	LAN (Local Area Network)	1
9.	The switching technique that splits a message into smaller pieces is known as?	1
Ans.	Packet Switching	
10.	The switching technique that establishes a dedicated path between sender and	1
	receiver is known as?	

Topic - Network Security Concepts

Q. No.	Question	Marks
1.	Name the Protection methods used to reduce the security threats?	2
Ans.	Authorization, Authentication, Encrypted Smart Cards, Biometric	
	System, Firewall etc.	
2.	What is Firewall?	1
Ans.	A system designed to prevent unauthorized access to or from a	
	private network is called Firewall.	
3.	Define the term Cookies?	1
Ans.	Cookies are messages that a Web server transmits to a Web browser	
	so that the Web server can keep track of the user's activity on a	
	specific website.	
4.	Differentiate the Hackers and Crackers?	2
Ans.	Hackers are the programmers more interested in gaining knowledge	
	about computer system and possibly using this knowledge for playful	
	pranks.	
	Crackers are the malicious programmers who break into secure	
	systems.	
5.	What is Cyberlaw?	1
Ans.	Cyberlaw refers to all the legal and regulatory aspects of Internet and	
	the world wide web (www).	
6.	Define the term Cyber Crime?	1
Ans.	Cyber Crime refers to an unlawful act where in the computer is either	
	a tool or a target or both. Cybercrime is committed in an electronic	
	medium	
7.	What are the different Cyber Crimes (Any Four)?	2
Ans.	a) Tempering with computer course documents	
	b) Hacking	
	c) Child pornography	
	d) Accessing protected system	
8.	Define the following terms (Any two):	2

- a) Virus
- b) Trojan Horse
- c) Worm

Ans **a) Virus** is a malicious program that requires a host and is designed to make a system sick.

- **b) Trojan Horses** is code hidden in a program such as a game or spreadsheet that looks safe to run but has hidden side effects.
- **c) Worm** is a program designed to replicate. It is self-contained and does not require a host.
- 9. Which of the following is defined as a Spam?
 - a) A malicious program that requires a host and is designed to make a system sick.
 - b) Code hidden in a program.
 - c) An electronic junk mail or junk newsgroup postings.
 - d) A program designed to replicate
- Ans c) An electronic junk mail or junk newsgroup postings.
- 10. Amit works for a marketing company as a salesman. He works on

 Internet for 6-8 hours a day. His laptop got infected with viruses due
 to some causes. Which one of the following is a Virus prevention
 method, he did not follow?
 - a) Create a separate folder for spam mails.
 - b) Installing an antivirus software and keep up to date.
 - c) Creating a secure password for the laptop.
 - d) Using credit card for online shopping.
- Ans b) Installing an antivirus software and keep up to date.

1

QUESTION BANK OF NETWORK TOPOLOGIES

IP TOPIC: Network Topologies: Star, Bus, Tree, Mesh.

CS TOPIC: Network Topologies and types: Bus, Star, Tree, PAN, LAN, WAN, MAN.

Q. No.	Question	Marks
1	Which of the following is not a network topology:	1
Ans.	Star, Mesh , Tree, Bug , Bus Bug	
2	Which type of Network is generally privately owned and links the devices in a	1
	single office building or Campus?	
	LAN, PAN, MAN, WAN	
Ans.	LAN	1
3	Uploading photo from mobile phone to Desktop computer is an example of (LAN, PAN, MAN, WAN)	1
Ans.	PAN	4
4	Data Communication systems spanning states, countries or the whole world is (PAN, LAN, WAN, MAN)	1
Ans.	WAN	
5	Internet is an example of most common type of network. (LAN, PAN, MAN, WAN)	1
Ans.	WAN	
6	The network designed for customers who need a high speed connectivity is (LAN, MAN, WAN, PAN)	1
Ans.	MAN	
7	Rearrange the following types of network PAN, MAN, LAN, WAN in descending	1
Ans.	order of their area coverage. WAN-MAN-LAN-PAN	
8 8	What is the possible maximum area covered by LAN	1
Ans.	a. 100-500 meter, b. 1-5 KM, c. 1-10 KM, d. 1-2 KM c. 1-10 KM	-
9	Which is used in LAN a) Wi-fi b) Wi-Max)	1
Ans.	Wi-fi	•
10	The multipoint topology is a. Bus b. Star c. Mesh d. Ring	1
		1
Ans.	a. Bus	1
11	In mesh topology, the devices are connected via. a. Multipoint link b. Point to point link c. No Link d. None of the above.	1
Ans.	b. Point to point link	
12	The bus, ring and star topologies are mostly used in the	1
	a. LAN, b. MAN, c. WAN, d. Internetwork	
Ans.	a) LAN	
13	The combination of two or more topologies are called	1
Δ	a. Star Topology, b. Bus Topology, c. Ring Topology, d. Hybrid	
Ans. 14	d. Hybrid A term that refers to the way in which the nodes of a network are linked	1
T- 1	together-	1
Ans.	a. Network, b. Topology, c. Connection, d. Interconnectivityb. Topology	
15	The participating computers in a network are referred to as:	1

Ans.	A Clients B S b) Nodes	Servers C N	odes D CF	PUs	
AIIS.	b) Nodes				
16	Α	WAN can be dev	veloped using le	eased private lines or any othe	r 1
	transmission faci	•			
		peer-to-peer	C Two-tiere	ed D Three-tiered	
Ans.	B) Peer-to-Peer				
17	Physical or logica	_			1
		Routing C N	etworking D N	None of the mentioned	
Ans.	A) Topology				_
18	Data communica	tion system spa	nning states, co	ountries, or the whole world i	s 1
	A LAN B WANCI	MAN D None of	the mentioned		
Ans.	b) WAN				
19	Bus, ring and star	topologies are	mostly used in t	the	1
	A LAN B MANC	WAN D Internety	work		
Ans.	a) LAN				
20	Data communica	tion system with	nin a building or	campus is	1
	A LAN B WANC I	MAN D None of	the mentioned		
Ans.	A) LAN				
21	A topology that in				1
_	A Star B I	Ring C B	us D Da	aisy Chaining	
Ans.	B) Ring				_
22	In which topology				1
		Mesh C R	ing D Bu	us	
Ans.	A) Star	**********	م بلمنا لممحمدات		. 1
23	controller.	topology, a de	edicated link co	onnects a device to a centra	1 Т
		b) Bus	c) Mosh	d) Star	
Ans.	d) Star	b) bus	c) iviesii	u) Stai	
24	•	nnology a device	e (non-central c	controller) needs only one inpu	+ 1
2-7	/ output port	spoiogy, a action	e (non central e	controller, freeds only one inpu	
		b) Bus	c) Mesh	d) Star	
Ans.	d) Star	,	5,5	3, 533.	
25	ATopolo	gy is a variation	of a Star topolo	gy.	1
		b) Bus	= = = = = = = = = = = = = = = = = = =		
Ans.	d) Tree	·	·	·	
26	In atopo	ology, a seconda	ry hub can conr	nect to a central hub.	1
	a) Ring	b) Bus	c) Mesh	d) Tree	
Ans.	d) Tree				
27	A bus topology ha				1
	a) Point –	to – Point b) N	∕Iultipoint c) p	passive d) None of the Above	9
A	٠				
Ans.	d) Multipoint				

TOPIC - SIMPLE QUERIES IN SQL

S.No Questions with Answers Marks 1 Write a function in SQL to find minimum and maximum value of a column in a 1 MIN () and MAX () aggregate functions in SQL. Sol 2 Which of the following is used to arrange data of table? 1 a. ARRANGE BY b. ORDER BY c. ASC d. DESC Sol b. ORDER BY 3 In MYSQL, write the query to display list of databases store in it. 1 SHOW DATABASES; Sol 4 Consider the following query: 1 SELCT emp name from Employee WHERE dept id NULL; a. = b. LIKE c. IS d. == Sol c. IS

5 For the given table **CLUB**

Table: CLUB

COAC	COACHNAME	AGE	SPORTS	DATOFAPP	PAY
H_ID					
1	KUKREJA	35	KARATE	27/03/1996	10000
2	RAVINA	34	KARATE	20/01/1997	12000
3	KARAN	34	SQUASH	19/02/1998	20000
4	TARUN	33	BASKETBALL	01/01/1998	15000
5	ZUBIN	36	SWIMMING	12/01/1998	7500
6	KETAKI	36	SWIMMING	24/02/1998	8000
7	ANKITA	39	SQUASH	20/02/1998	22000
8	ZAREEN	37	KARATE	22/02/1998	11000
9	KUSH	41	SWIMMING	13/01/1998	9000
10	SHAILYA	37	BASKETBALL	19/02/1998	17000

What will be the degree and cardinality of table?

Sol Degree is Number of attributes or columns which will be 7 Cardinality is Number of tuples or rows in a table which will be 10.

6 Which of the following is not a valid clause in SQL?

1

1

- a. MIN
- b. WHERE
- c. BETWEEN
- d. GROUP BY

Sol a. MIN is a function in SQL (not a clause like rest of the options)

7 Which command is used to add new row in a table?

1

- a. Add
- b. Insert
- c. Update
- d. None of the above
- **Sol** b. Insert command is used to add new row in a table
- **8** What is the full of SQL?

1

2

- **Sol** Structured Query Language
- **9** What is the difference between CHAR and VARCHAR datatypes in SQL?
- CHAR data type is used to store fixed-length string data and the VARCHAR data type is used to store variable-length string data.
 - The storage size of the CHAR data type will always be the maximum length of this data type and the storage size of VARCHAR will be the length of the inserted string data. Hence, it is better to use the CHAR data type when the length of the string will be the same length for all the records.
 - CHAR is used to store small data whereas VARCHAR is used to store large data.
 - CHAR works faster and VARCHAR works slower.
- 10 Consider the following table Student and give output of following questions:

Table: Student

RollNo	Name	Subject	Marks	Grade
1001	Ram	English	78	В
1002	Shyam	Hindi	89	Α
1003	Karan	SST	67	С
1004	Rajan	Science	98	A+
1005	Shaan	Computer	81	В

a SELECT * FROM Student WHERE Grade = 'B';

1

b SELECT MAX(Marks) FROM Student;

Т

c SELECT Name, Marks FROM Student WHERE Subject IN ('English', 'Science');

1

d SELECT RollNo, Subject FROM Student WHERE Marks>= 85;

1

Sol a

RollNo	Name	Subject	Marks	Grade
1001	Ram	English	78	В
1005	Shaan	Computer	81	В

b

MAX(Marks)	
98	

 Name
 Marks

 Ram
 78

 Rajan
 98

d RollNo Subject
1002 Hindi
1004 Science

11 Write SQL commands for the following on the basis of given table WORKER

Table: Worker

abic: Worker						
Worker_ID	First_Name	Last_Name	Salary	Joining_Da	Departmer	
				te	t	
001	Monika	Arora	100000	2014-02-20	HR	
002	Niharika	Verman	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	2014-01-20	Account	
008	Geetika	Chauhan	90000	2014-04-11	Admin	

- **a** To display first and last name of workers having salary greater than or equal to **1** 90000.
- b To display details of workers working in HR department and Admin department 1
- c To find average of Salary in table worker 1
- d To Change first name of worker to 'Satisha' whose worker id is 007
- **Sol a** SELECT First_Name, Last_Name FROM Worker WHERE Salary >=90000;
- **b** SELECT * FROM Worker WHERE Department IN ('HR', 'Admin');
- c SELECT AVG(Salary) FROM worker;
- **d** UPDATE Worker SET First_Name='Satisha' WHERE Worker_Id=007;

Question Bank: SQL Basics (DDL and DML Commands)

PART A, Section I

1	Which of the following is a DDL command?
	a) SELECT b) ALTER c) INSERT d) UPDATE

Ans. b) ALTER

2 What is the minimum number of column required in MySQL to create table?

Ans. ONE (1)

3 The command can be used to makes changes in the rows of a table in SQL.

Ans.

4 Which command is used to add new column in existing table?

Ans. ALTER TABLE

5 Which command is used to remove the table from database?

Ans. DROP TABLE

6 Which command is used to add new record in table?

Ans. INSERT INTO

7 In SQL, name the clause that is used to display the tuples in ascending order of an attribute

Ans. ORDER BY

8 In SQL, what is the use of IS NULL operator?

Ans. IS NULL used to compare NULL values present in any column

9 Which of the following types of table constraints will prevent the entry of duplicate rows? a)Unique b)Distinct c)Primary Key d)NULL

Ans. c) Primary Key

Which is the subset of SQL commands used to manipulate database structures, including tables?

a. None of these

b.Both Data Definition Language (DDL) and Data Manipulation Language (DML)

c.Data Definition Language (DDL)

d.Data Manipulation Language (DML)

Ans. c.Data Definition Language (DDL)

PART A, Section II

1 Consider the table STUDENT given below:

RollNo	Name	Class	DOB	Gender	City	Marks
1	Anand	XI	6/6/97	M	Agra	430
2	Chetan	XII	7/5/94	M	Mumbai	460
3	Geet	XI	6/5/97	F	Agra	470
4	Preeti	XII	8/8/95	F	Mumbai	492
5	Saniyal	XII	8/10/95	М	Delhi	360
6	Maakhiy	XI	12/12/9	F	Dubai	256
			4			
7	Neha	X	8/12/95	F	Moscow	324
8	Nishant	X	12/6/95	M	Moscow	429

a. State the command that will give the output as:

Name
Anand
Chetan
Geet
Preeti

i. select name from student where class='XI' and class='XII';

ii. select name from student where not class='XI' and class='XII';

iii. select name from student where city="Agra" OR
city="Mumbai";

iv. select name from student where city IN("Agra", "Mumbai");

Choose the correct option:

a. Both (i) and (ii).

- b. Both (iii) and (iv).
- c. Any of the options (i), (ii) and (iv)
- d. Only (iii)

Ans. b. Both (iii) and (iv).

What will be the output of the following command?
Select * from student where gender ="F" order by marks;

(i)

Rollno	Name	Class	DOB	Gende r	City	Mar ks
4	Preeti	XII	8/8/95	 F	Mumbai	492
3	Geet	XI	6/5/97	F	Agra	470
7	Neha	X	8/12/9	F	Moscow	324
6	Maakhiy	XI	5 12/12/ 94	F	Dubai	256

(ii)

ĺ	Rollno	Name	Class	DOB	Gender	City	Marks
	6	Maakhiy	ΧI	12/12/94	F	Dubai	256
	7	Neha	X	8/12/95	F	Moscow	324
	3	Geet	XI	6/5/97	F	Agra	470
	4	Preeti	XII	8/8/95	F	Mumbai	492

(iii)

Gender	Marks
F	256
F	324
F	470
F	492

(iv)

Gender	Marks
F	492
F	470
F	324
F	256

(i)

Rollno	Name	Class	DOB	Gende	City	Mar
				r		ks
4	Preeti	XII	8/8/95	F	Mumbai	492
3	Geet	XI	6/5/97	F	Agra	470
7	Neha	X	8/12/9	F	Moscow	324
6	Maakhiy	XI	5 12/12/ 94	F	Dubai	256

c Prachi has given the following command to obtain the highest marks Select max(marks)

from student where group by class;

but she is not getting the desired result. Help her by writing the correct command.

- a. Select max(marks) from student where group by class;
- b. Select class, max(marks) from student group by marks;
- c. Select class, max(marks) group by class from student;
- d. Select class, max(marks) from student group by class;
- **Ans.** d. Select class, max(marks) from student group by class;
- **d** State the command to display the average marks scored by students of each gender who are in class XI?
 - i. Select gender, avg(marks) from student where class= "XI" group by gender;
 - ii Select gender, avg(marks) from student group by gender where class="XI";
 - iii. Select gender, avg(marks) group by gender from student having class="XI";
 - iv. Select gender, avg(marks) from student group by gender having class = "XI";

Choose the correct option:

- a. Both (ii) and (iii)
- b. Both (ii) and (iv)
- c. Both (i) and (iii)
- d. Only (iv)
- Ans. d. Only (iv)
- **e** Help Ritesh to write the command to display the name of the youngest student?
 - a. select name, min(DOB) from student;
 - b. select name, max(DOB) from student;
 - c. select name, min(DOB) from student group by name;
 - d. select name, maximum (DOB) from student;
- **Ans.** c. select name,min(DOB) from student group by name;
- **2** From the given table, Answer the following questions:

TableName-House

House_Name	House_Captain	House_Points
Red Rose	Yathin	243
Lotus	Hari Narayan	298
Blue Bells	Anil Sharma	220
Sun Flower	Felicita	260

- **a** Write the degree and cardinality of the above table.
- **Ans.** Degree=3 and cardinality=4
- **b** Write the domain of House Captain attribute.
- Ans. Yathin, Hari Narayan, Anil Sharma, Felicita
- **c** Write a Query to insert House_Name=Tulip, House_Captain= Rajesh and House Point=278
- **Ans.** Insert into House values ('Tulip','Rajesh',278)
- **d** Any field of above table can be made Primary key
- Ans. House_Points
- e If we want to add a new column in above table which SQL command we use
- Ans. Alter table House

Add <new column> <data type>;

PART B, Section I (2 marks)

1 Write the full forms of DDL and DML. Write any two commands of DML in SQL.

Ans. DDL: Data Definition Language, DML: Data Manipulation Language

DML Commands: SELECT, UPDATE

2 Mr. Mittal is using a table with following columns:

Name, Class, Streamed, Stream name

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

assigned stream name that ends with "computers

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

SELECT Name, Class FROM Students

WHERE Stream name = NULL OR Stream name = "%computers";

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

Ans. SELECT Name, Class FROM Students

WHERE Stream name IS NULL OR Stream name = "%computers";

3 What is the use of wildcard?

LIKE is used with two wildcard characters:

- a) % : used when we want to substitute multiple characters. With % length is not fixed
- b) _ (underscore) : used when we want to substitute Single character
- 4 What do you understand by Degree and Cardinality of a table?

Ans. Degree: Number of attributes and Cardinality is number of tuples in a relation

PART B, Section II (3 marks)

1 A relation Vehicles is given below:

\/ no	Type	Company	Price	Oty
V_no	Туре	Company	Price	Qty
AW125	Wagon	Maruti	250000	25
J0083	Jeep	Mahindra	4000000	15
S9090	SUV	Mitsubishi	2500000	18
M0892	Mini van	Datsun	1500000	26
W9760	SUV	Maruti	2500000	18
R2409	Mini van	Mahindra	350000	15

a Display the average price of each type of vehicle having quantity more than 20.

Ans. Select avg(price), type from vehicles group by type having qty>20;

b Count the type of vehicles manufactured by each company.

Ans. Select count(type),type,company from vehicles group by company;

c Display the total price of all the types of vehicles.

Ans. Select sum(price) from vehicles group by type

2 In a database there are two tables: Write MYSQL queries for (i) to (iii)

Table: Item

ICode	IName	Price	Color	VCode
S001	Mobile Phones	30000	Silver	P01
S002	Refrigerator	20000	Cherry	P02
S003	TV	45000	Black	P03
S004	Washing Machine	12000	White	P04
S005	Air Conditioner	50000	White	P05

Table: Vendor

VCode	VName
P01	Rahul
P02	Mukesh
P03	Rohan
P04	Kapil

(i)To display ICode, IName and VName of all the vendors, who manufacture "Refrigerator".

(ii)To display IName, ICode, VName and price of all the products whose price >=23000

(iii)To display Vname and IName manufactured by vendor whose code is "P04".

Ans (i)Select ICode, IName,VName from Item I,Vendor V where I.Vcode=V.VCode and IName='Refrigerator'

(ii)Select IName, ICode,VName from Item I,Vendor V where I.Vcode=V.VCode and Price>=23000

(iii)Select VName,IName from Item I,Vendor V where I.Vcode=V.VCode and I.VCode='P04'

PART B, Section III (5 marks)

1 Considering the Visitor table data, write the query for

VisitorID	VisitorName	Gender	ComingFrom	AmountPaid
1	Suman	F	Kanpur	2500
2	Indu	F	Lucknow	3000
3	Rachana	F	Haryana	2000
4	Vikram	M	Kanpur	4000
5	Rajesh	M	Kanpur	3000
6	Suresh	M	Allahabad	3600
7	Dinesh	M	Lucknow	
8	Shikha	F	Varanasi	5000

(i)Write a query to display VisitorName, Coming From details of Female Visitors with Amount Paid more than 3000

- (ii)Write a query to display all coming from location uniquely
- (iii) Write a guery to insert the following values- 7, "Shilpa", "F", "Lucknow", 3000
- (iv)Write a query to display all details of visitors in order of their AmountPaid from highest to lowest
- (v) Write a query to display visitor name with annual amount paid
- **Ans.** (i) Select VisitorName,ComingFrom from Visitor AmountPaid>3000
 - (ii) Select distinct ComingFrom from Visitor
 - (iii) insert into visitor values(7,'Shilpa','F','Lucknow',3000)
 - (iv) Select * from visitor order by AmountPaid desc
 - (v) select visitorname, amountpaid*12 rom visitor;

Queries using Having and Group By Clauses

- 1 Which of the following clause cannot be used with WHERE?
 - a) IN
 - b) Between
 - c) Group by
 - d) None of the above

Ans Group By

- Which of the following clause can be used with Group By?
 - a) Having
 - b) Where
 - c) Order by
 - d) None

Ans Having and Order By

3. Write down name of four functions that can be used with Group by?

Ans Count(), sum(), min(), max()

4. What is Group By clause?

Ans The GROUP BY Clause is utilized in SQL with the SELECT statement to organize similar data into groups. It combines the multiple records in single or more columns using some functions. Generally, these functions are aggregate functions such as min(),max(),avg(), count(), and sum() to combine into single or multiple columns.

5. Why we use Having clause?

Ans The HAVING clause was added to SQL because the WHERE keyword could not be used with aggregate functions.

6. What is the purpose of Group By clause?

Ans Group by clause is used in a Select statement in conjunction with aggregate functions to group the result based on distinct values in column.

7. You have a table "Company" having column cno, cname, department and salary. Write SQL statement to display average salary of each department.

Ans SELECT department, avg(salary)

from company

Group by department;

8. Can a Group by clause be used for more than one column? If yes, given an example.

Ans Yes.

Select name, grade, class

From student

Group by Class, grade

9. Anis has given the following command to arrange the data in ascending order of date.

Select * from travel where order by tdate;

But he is not getting the desired result.

Help him by choosing the correct command.

- a. Select * from travel order by tdate;
- b. Select * from travel in ascending order;
- c. Select tdate from travel order by tdate;

Ans . Select * from travel order by tdate;

10. Choose the correct query to count the number of codes in each code type from travel table?

i. select count(code) from travel;

ii. select code, count(code) from travel group by code;

iii. select code, count(distinct code) from travel;

iv. select code, count(distinct code) from travel group by code;

Choose the correct option:

- a. Both (ii) and (iii)
- b. Both (ii) and (iv)
- c. Both (i) and (iii)
- d. Only (ii)

Ans B

11 Identify the name of connector to establish bridge between Python and MySQL

- 1. mysql.connection
- 2. connector
- 3. mysql.connect
- 4. mysql.connector

Ans 4. mysql.connector

Which function of connection is used to check whether connection to mysql is successfully done or not?

import mysql.connector as msq
con=msq.connect(#ConnectionString) # Assuming all parameter required as
passed if_____:
print("Connected!")
else:
print("Error! Not Connected")

- a) con.connected()
- b) con.isconnected()
- c) con.is_connected()
- d) con.is connect()

Ans c) con.is_connected()

13 What is the difference in fetchall() and fetchone()?

Ans fetchall() function is used to fetch all the records from the cursor in the form of tuple.

fetchone() is used to fetch one record at a time. Subsequent fetchone() will fetch nextrecords. If no more records to fetch it return None.

14 The kind of join that will return all the rows from the left table in combination with the matching records or rows from the right table.

Ans Left Join

INTERFACE PYTHON WITH MYSQL

1 What do you mean by Database connectivity? Database connectivity refers to connection/communication between front-end Ans applications like Python, Java etc. to Back-end Applications like MySQL, SQL Server etc. 2 What is Result set? Ans Result set refers the logical set records fetched from the database by executing a query. 3 Name of connector/driver used to establish bridge between Python and MySQL? Ans mysql.connector 4 In the following connection string: Identify the elements: (assume 'admin' is password) connect(__<<1>>___ = "localhost",__ <<2>>___ = "root",___ <<3>>="admin") <<1>> = host. <<2>> = user. <<3> = passwd Ans 5 Which function of connection is used to check whether connection to mysgl is successfully done or not? Ans con.is connected() where con is name of connection object. 6 Which of the component/object which act as a container to hold all the data returned from the guery and from there we can fetch data one at a time? Ans Cursor 7 Which command of Python is used to install mysgl.connector driver in python IDLE? Ans pip install mysgl.connector 8 Which command is used to add database connection package in the Python program? import mysql.connector Ans 9 Identify the correct statement to create cursor: import mysql.connector as msq con = msq.connect(#Connection String) # Assuming all parameter required as passed mycursor = a. con.cursor() b. con.create_cursor() c. con.open cursor() d. con.get cursor() a. con.cursor() Ans

Which function is used to clean connection environment and close connection?

con.close() where con is the name of connection object.

10

Ans

Class: SAMPLE PAPER XII Session: 2020-21 Computer Science (083)

Sample Question Paper (Theory) Maximum Marks: 70 Time Allowed: 3 hours General Instructions:

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

Each case study has 4 case-based subparts.

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

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

Section-I Select the most appropriate option out of the options given for each question. Attempt any 15 questions from question no 1 to 21.

Q1.	Find the invalid identifier from the following	1
	a) RollNo b) None c) 5star d) My_Class	
	, , , , , , , , , , , , , , , , , , ,	
Q2.	Given the lists A=[2,4,6,8,10,1,3,6,82], write the output of print(L[3:6])	1
Q3.	Write the library is needed to import from CSV file.	1
Q4.	Identify the invalid string operator in Python from the following. a) + b)* c)% d) in	1
Q5.	Suppose a tuple T is declared as $T = (1, 3, 5, 9)$, which of the following is incorrect? a) print(T[1]) b) T[2] = -8 c) print(max(T)) d) print(len(T))	1
Q6.	Write a statement in Python to declare a dictionary whose keys are 5, 6, 7 and values are Thursday, Friday and Saturday respectively.	1
Q7.	A tuple is declared as $L = (1,2,3,4,5)$ What will be the value of sum(L)?	1
Q8.	Name the built-in string function / method that is used to return Upper case of a given string.	1
Q9.	Name the protocol that is used to transfer send emails.	1
Q10.	Your friend Amit complaints that somebody has created a fake profile on Instagram and defaming her character with abusive comments and pictures. Identify the type of cybercrime for these situations.	1
Q11.	In SQL, name the clause that is used to display the tuples in descending order of an attribute.	1
Q12.	In SQL, what is the use of Between operator?	1

Q13.	Write aggregate function used in SQL to find highest value in given attribute.	1
Q14.	Which of the following is a DML command? a) SELECT b) ALTER c) CREATE d) DROP	1
Q15.	Name The transmission media best suitable for fastest guided media with in the	1
	campus.	
Q16.	Identify the valid declaration of S: S= "CBSE EXAMINATION"	1
	a. dictionary b. string c. tuple d. list	
Q17.	If the following code is executed, what will be the output of the following code?	1
	name="Class XII Computer Science" print(name[2:12])	
Q18.	In SQL, write the query to display all records with in given table.	1
Q19.	What is the full form of SMS?	1
Q20.	Which of the following types of table constraints will prevent the entry of duplicate	1
	rows? a) Unique b) Distinct c) Primary Key d) NULL	
Q21.	Rearrange the following terms in increasing order of their Distance Area. WAN, PAN,	1
	MAN, LAN	

Section-II

Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark

Q22. Write SQL queries for (i) to (iv) based on the following tables.

Table: TRAVEL.

NO	NAME	TDATE	KM	CODE	NOP
101	Janish	2015-02-18	100	101	32
102	Vedika	2014-06-06	65	101	45
103	Tarun	2012-10-09	32	104	42
104	John	2015-10-30	55	105	40
105	Ahmed	2015-12-15	47	103	16
106	Raveena	2016-02-26	82	103	9

NO is Traveller Number

KM is Kilometers travelled

NOP is number of travellers in a vehicle

DATE is Travel Date VCODE Vehicle Code

Table: VEHICLE

CODE	VTYPE	PERKM
101	VOLVO BUS	160
102	AC BUS	150
104	ORDINARY BUS	80
103	CAR	25
105	SUV	40

- a) To display NO, NAME, TDATE from the table Travel in the descending order of NO.
- b) To display the NAME of all the travellers from the table TRAVEL who are travelling by vehicle with code 101 or 102.
- c) To display the NO and NAME of those travellers from the table TRAVEL who travelled between 2015-12-31 and 2015-04-01.
- d) Display maximum and minimum kilometres travelled by passengers.
- e)Write a Query to display the details of all vehicle where vtype is like BUS

Q23. | Sunita of class 12 is writing a program to create a CSV file "person.csv" which will

1 1

1

50 | Page

	contain Person name and Mobile numbers for some entries. He has written the		
	following code. As a programmer, help him to successfully execute the given task.		
	import # Line 1		
	def addCsvFile(Name,Mobile): # to write / add data into the CSV file		
	f=open('person.csv','') # Line 2		
	newFileWriter = csv.writer(f)		
	newFileWriter.writerow([Name,Mobile])		
	f.close()		
	#csv file reading code		
	def readCsvFile(): # to read data from CSV file		
	with open(' user.csv','r') as newFile:		
	newFileReader = csv. (newFile) # Line 3		
	for row in newFileReader:		
	print (row[0],row[1])		
	newFile # Line 4		
	addCsvFile("Arjun","9243427899")		
	addCsvFile("Pooja","9868745232")		
	addCsvFile("Sunil","700518771")		
	readCsvFile() #Line 5		
	(a) Name the module he should import in Line 1.	1	
	(b) In which mode, Sunita should open the file to add data into the file	1	
	(c) Fill in the blank in Line 3 to read the data from a csv file.	1	
	(d) Fill in the blank in Line 4 to close the file.	1	
	(e) Write the output he will obtain while executing Line 5	1	
	Part – B		
	Section-I		
24	L1=[10,20,30,10,30,20]	2	
- '	print(L1[-2:1:-1]	_	
	print(L1.index(20))		
	L1.append(len(L1))		
	print(L1)		
	L1.remove(30))		
	print(L1)		
		_	
25	Differentiate between Viruses and Worms in context of networking and data	2	
	communication threats.		
	OR		
	Differentiate between Web server and web browser. Write any two popular web		
	browsers.		
26	Expand the following terms: (i) URL (ii) NFC (iii) HTTP (iv) SMTP	2	
		1	
27	Differentiate between actual keyword parameters and a positional parameters with	2	
	a suitable example for each.		
	OR		
	Differentiate between Global Variable and a Local Variable with a suitable example		
	for each	<u> </u>	
28	Rewrite the following code in Python after removing all syntax error(s). Underline	2	

		1			
	each correction done in the code.				
	S='Python program'				
	L=length(S)				
	for i in range[L]:				
	if i%2=0:				
	print(S[i])				
	else:				
	print(i)				
	F(.)				
29	What possible output(s) are expected to be displayed on screen at the time of	2			
23	execution of the following code? Also specify the maximum and minimum value that				
	can be assigned to variable X.				
	import random				
	·				
	L=[10,7,21]				
	X=random.randint(1,2)				
	for i in range(X):				
	Y=random.randint(1,X)				
	print(L[Y],"\$",end=" ")				
	(i)10 \$ 7 \$ (ii) 21 \$ 7 \$ (iii) 21 \$ 10 \$ (iv) 7 \$				
30	What is meant by degree and cardinality of a table?	2			
31	Differentiate between fetchone() and fetchmany() methods with suitable examples	2			
	for each				
32	Write is the difference between Drop and Delete command of MYSQL. Write their	2			
	syntax also in SQL.				
33	Find and write the output of the following Python code:	2			
	def changer(p,q=10):				
	p=p/q				
	q=p%q				
	print(p,'#',q)				
	return p				
	a=200				
	b=20				
	a=changer(a,b)				
	print(a,'\$',b)				
	a=changer(a)				
	print(a,'\$',b)				
	Section- II				
24		2			
34	Write a function Prime(n) in Python, which accepts an Integer No and check that	3			
25	given mo is Prime or Not.				
35	Write a method/function Count() to count numbers of words having 4 characters	3			
	from a text file "notes.txt".				
	OR				
	Write a function disp() in python to read lines from a text file and display those lines				
	starting with 'G' or 'g' along with line number from the text file "Story.txt".				
36	Write a output for SQL queries (i) to (iii), which are based on the table: ACTIVITY	3			
	given below:				

Table: AC	ΓΙVΙΤΥ				
	ACode	ActivityName	ParticipantsNum	PrizeMoney	ScheduleDate
	1001	Relay 100x4	16	10000	23-Jan-2004
	1002	High jump	10	12000	12-Dec-2003
	1003	Shot Put	12	8000	14-Feb-2004
	1005	Long lumn	12	9000	01-lan-2004

- a) select count(distinct participantsnum) from activity;
- b) select max(scheduledate), min(scheduledate) from activity;

10

c) select sum(prizemoney) from activity;

Discuss

1008

Write a function in Python, InsQueue (Passenger) and DelQueue(Passenger) for performing insertion a new Passenger and delete a Passenger from a list of Passenger names, considering them to act as insert and delete operations of the Queue Data structure.

OR

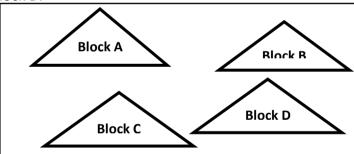
Write a function/method in python, DoPush(Customer) and Doop(Customer) to add a new Customer and delete a Customer from a List of Customer names, considering them to act as push and pop operations of the Stack data structure.

15000

19-Mar-2004

Section-III

ABC Pvt Ltd is setting up the network in Chennai. There are four blocks- Block A, Block B, Block C & Block D.



Distance between various blocks are given below:

Block	Distance		
Block A to Block B	75 m		
Block A to Block C	170m		
Block A to Block D	100m		
Block B to Block C	120 m		
Block B to Block D	130 m		
Block C to Block D	50 m		

Number of computers in each block are given below:

Block	No.of computers
Block A	85
Block B	28
Block C	43

			Block	D	20				
	i)Suggest the most suitable block to place the server with a suitable reason.								
	ii) Suggest the cable layout for connections between the various blocks.								
	iii) Suggest the placement of following devices with justification:								
	a)Switch/Hub								
	b) Repeater								
	-	_	=	_				city in a hill	-
	_				possible. Sug	ggest an eco	onomic w	ay to connec	t
		•	nigh spee						
39	v) Out of following which type of Network it is LAN,MAN,WAN Write SQL (i) to (v) based on following table:						5		
39	write 3C			I TOHOWING	table .				3
		Table: En	ıp						
		EMPNO	ENAME	JOB	HIREDATE	SAL	сомм	DEPTNO	
		7566	JONES	MANAGER	02-Apr-81	2975	NULL	20	
		7654	MARTIN	SALESMAN	28-Sep-81	1250	1400	30	
		7698	BLAKE	MANAGER	01-May-81	2850	NULL	30	
		7782	CLARK	MANAGER	09-Jun-81	2450	NULL	10	
		7788	SCOTT	ANALYST	09-Dec-82	3000	NULL	20	
	a) To list the Employee Name who are not getting any commission(COMM). b) Display Name of Employee whose name start with character 'A'. c) To count number of Jobs available in company i.e. in EMP table. d) To display Employee no. and name of employees in decreasing order of Salary. e) write a Query to display the no of records which have comm NULL								
40	A binary file "Item.dat" has structure [Itemcode, Name, Category, Price]. i. Write a user defined function CreateFile() to input data for a record and add to Item.dat ii. Write a function Count(Category) in Python which accepts the Category as parameter and count and return number of items by the given Category are stored in the binary file "Item.dat" OR A binary file "Employee.DAT" has structure (Ecode, Name,Salary). Write a function count() in Python that would read contents of the file "Employee.DAT" and display the details of those Employee whose salary is above 50000. Also display number of						y e n y		
	Employees having Salary above 50000								