SET-1

KENDRIYA VIDYALAYA SANGATHAN AGRA REGION
PRE BOARD EXAMINATION 2022-23

Class : XII	**Time Allowed** : 03:00 Hours
Subject : (083) Computer Science	**Maximum Marks : 70**

General instructions:

- *This question paper contains five sections, Section A to E.*
- *All questions are compulsory.*
- *Section A have 18 questions carrying 01 mark each.*
- *Section B has 07 Very Short Answer type questions carrying 02 marks each.*
- *Section C has 05 Short Answer type questions carrying 03 marks each.*
- *Section D has 03 Long Answer type questions carrying 05 marks each.*
- *Section E has 02 questions carrying 04 marks each. One internal choice is given in Q34 against part C only.*
- *All programming questions are to be answered using Python Language only.*

	Section – A	
Q01.	State True or False "Tuple is datatype in Python which contain data in key-value pair."	(1)
Q02.	Which of the following is not a keyword? (A) eval (B) assert (C) nonlocal (D) pass	(1)
Q03.	Given the following dictionaries dict_student = {"rno" : "53", "name" : 'Rajveer Singh'} dict_marks = {"Accts" : 87, "English" : 65} Which statement will merge the contents of both dictionaries? (A) dict_student + dict_marks (B) dict_student.add(dict_marks) (C) dict_student.merge(dict_marks) (D) dict_student.update(dict_marks)	(1)
Q04.	Consider the given expression: not ((True and False) or True)	(1)

	Which of the following will be correct output if the given expression is evaluated?	
	(A) True (B) False	
	(C) NONE (D) NULL	
Q05.	Select the correct output of the code:	(1)
	>>> s='mail2kv@kvsangathan.kvs.in'	
	>>> s=s.split('kv')	
	>>> op = s[0] + "@kv" + s[2]	
	>>> print(op)	
	(A) mail2@kvsangathan (B) mail2@sangathan.	
	(C) mail2@kvsangathan. (D) mail2kvsangathan.	
Q06.	Which functions is used to close a file in python?	(1)
	(A) close (B) cloose()	
	(C) Close() (D) close()	
Q07.	Fill in the blank:	(1)
	_____ command is used to change table structure in SQL.	
	(A) update (B) change	
	(C) alter (D) modify	
Q08.	Which of the following commands will remove the entire database from MYSQL?	(1)
	(A) DELETE DATABASE (B) DROP DATABASE	
	(C) REMOVE DATABASE (D) ALTER DATABASE	
Q09.	Which of the following statement(s) would give an error after executing the following code?	(1)
	D={'rno':32,'name':'Ms Archana','subject':['hindi','english','cs'],'marks':(85,75,89)} #S1	
	print(D) #S2	
	D['subject'][2]='IP' #S3	
	D['marks'][2]=80 #S4	
	print(D) #S5	
	(A) S1 (B) S3	
	(C) S4 (D) S3 and S4	
Q10.	Fill in the blank:	(1)
	_____ is a non-key attribute, whose values are derived from the primary key of some other table.	
	(A) Primary Key (B) Candidate Key	
	(C) Foreign Key (D) Alternate Key	

Q11.	The correct syntax of seek() is: (A) seek(offset [, reference_point]) (B) seek(offset, file_object) (C) seek.file_object(offset) (D) file_object.seek(offset [, reference_point])	(1)
Q12.	Fill in the blank: The SELECT statement when combined with _____ clause, returns records without repetition. (A) DISTINCT (B) DESCRIBE (C) UNIQUE (D) NULL	(1)
Q13.	Fill in the blank: _____ is a communication methodology designed to deliver both voice and multimedia communications over Internet protocol. (A) SMTP (B) VoIP (C) PPP (D) HTTP	(1)
Q14.	What will the following expression be evaluated to in Python? print (round (100.0 / 4 + (3 + 2.55) , 1)) (A) 30.0 (B) 30.55 (C) 30.6 (D) 31	(1)
Q15.	Which function is used to display the total number of records from a table in a database? (A) total() (B) total(*) (C) return(*) (D) count(*)	(1)
Q16.	In order to open a connection with MySQL database from within Python using mysql.connector package, _____ function is used. (A) open (B) connect (C) database() (D) connectdb()	(1)
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (A) Both A and R are true and R is the correct explanation for A (B) Both A and R are true and R is not the correct explanation for A (C) A is True but R is False (D) A is false but R is True	
Q17.	str1= "Class" + "Work" ASSERTION: Value of str1 will be "ClassWork". REASONING: Operator '+' adds the operands, if both are numbers & concatenates the string if both operands are strings.	(1)

Q18.	Assertion: CSV (Comma Separated Values) is a file format for data storage which looks like a text file. Reason (R): The information is organized with one record on each line and each field is separated by semi-colon.	(1)
	Section – B	

Q19.	Vivek has written a code to input a number and check whether it is even or odd number. His code is having errors. Rewrite the correct code and underline the corrections made.
	
	Def checkNumber(N):
	    status = N%2
	    return
	#main-code
	num=int(input(" Enter a number to check :))
	k=checkNumber(num)
	if k = 0:
	    print("This is EVEN number")
	else:
	    print("This is ODD number")
		(2)

Q20.	Write two points of difference between Bus topology and star topology. OR Write two points of difference between XML and HTML.	(2)

Q21.	(A) Given is a Python string declaration:
	                message='FirstPreBoardExam@2022-23'
	        Write the output of: print(message[: : -3].upper())
	
	(B) Write the output of the code given below:
	        d1={'rno':25, 'name':'dipanshu'}
	        d2={'name':'himanshu', 'age':30,'dept':'mechanical'}
	        d2.update(d1)
	        print(d2.keys())
		(2)

Q22.	Explain the use of 'Foreign Key' in a Relational Database Management System. Give example to	(2)

	support your answer.	
Q23.	(A) Write the full forms of the following: (i) HTTP (ii) FTP (B) What is the use of TELNET?	(2)

Q24.	Predict the output of the Python code given below:
	
	``python
	data=["L",20,"M",40,"N",60]
	times=0
	alpha=""
	add=0
	
	for c in range(1,6,2):
	    times = times + c
	    alpha = alpha + data [c-1] + "@"
	    add = add + data[c]
	    print (times, add, alpha)
	``
	
	           OR
	
	Predict the output of the Python code given below:
	
	``python
	L=[1,2,3,4,5]
	Lst=[]
	for i in range(len(L)):
	    if i%2==1:
	        t=(L[i],L[i]**2)
	        Lst.append(t)
	print(Lst)
	``
		(2)

Q25.	Differentiate between order by and group by clause in SQL with appropriate example. OR	(2)

Categorize the following commands as DDL or DML:

INSERT, UPDATE, ALTER, DROP

Section – C

| Q26. | Write the output of the queries (i) to (vi) based on the table given below: | (3) |

TABLE: CHIPS

BRAND_NAME	FLAVOUR	PRICE	QUNATITY
LAYS	ONION	10	5
LAYS	TOMATO	20	12
UNCLE CHIPS	SPICY	12	10
UNCLE CHIPS	PUDINA	10	12
HALDIRAM	SALTY	10	20
HALDIRAM	TOMATO	25	30

(i)   Select BRAND_NAME, FLAVOUR from CHIPS where PRICE <> 10;

(ii)   Select * from CHIPS where FLAVOUR="TOMATO" and PRICE > 20;

(iii)   Select BRAND_NAME from CHIPS where price > 15 and QUANTITY < 15;

(iv)   Select count(distinct (BRAND_NAME)) from CHIPS;

(v)   Select price , price *1.5 from CHIPS where FLAVOUR = "PUDINA";

(vi)   Select distinct (BRAND_NAME) from CHIPS order by BRAND_NAME desc;

| Q27. | Write a function countINDIA() which read a text file 'myfile.txt' and print the frequency | (3) |

of the words 'India' in it (ignoring case of the word).

Example: If the file content is as follows:

INDIA is my country. I live in India. India has many states.

The countIndia() function should display the output as:

    Frequency of India is 3

                    OR

Write a function countVowel() in Python, which should read each character of a text file

"myfile.txt" and then count and display the count of occurrence of vowels (including small cases

and upper case).

Example:

If the file content is as follows:

INDIA is my country. I live in India. India has many states.

The countVowel() function should display the output as:

Total number of vowels are : 20

Q28.	(A) Consider the following tables BOOKS and ISSUED in a database named "LIBRARY". Write SQL commands for the statements (i) to (iv).

Table: BOOKS

BID	BNAME	AUNAME	PRICE	TYPE	QTY
COMP11	LET US C	YASHWANT	350	COMPUTER	15
GEOG33	INDIA MAP	RANJEET P	150	GEOGRAPHY	20
HIST66	HISTORY	R BALA	210	HISTORY	25
COMP12	MY FIRST C	VINOD DUA	330	COMPUTER	18
LITR88	MY DREAMS	ARVIND AD	470	NOBEL	24

Table: ISSUED

BID	QTY_ISSUED
HIST66	10
COMP11	5
LITR88	15

(i) Display book name and author name and price of computer type books.

(ii) To increase the price of all history books by Rs 50.

(iii) Show the details of all books in ascending order of their prices.

(iv) To display book id, book name and quantity issued for all books which have been issued.

(B) Write the command to view all tables in a database.

Q29. Write a function lenFOURword(L), where L is the list of elements (list of words) passed as argument to the function. The function returns another list named 'indexList' that stores the indices of all four lettered word of L.

For example:

(Q28 marks: (3), Q29 marks: (3))

	If L contains ["DINESH", "RAMESH", "AMAN", "SURESH", "KARN"]	
	The indexList will have [2, 4]	
Q30.	A list contains following record of a student:	(3)
	[StudentName, Class, Section, MobileNumber]	
	Write the following user defined functions to perform given operations on the stack named 'xiia':	
	(i) pushElement() - To Push an object containing name and mobile number of students who belong to class xii and section 'a' to the stack	
	(ii) popElement() - To Pop the objects from the stack and display them. Also, display "Stack Empty" when there are no elements in the stack.	
	For example:	
	If the lists of students details are:	
	["Rajveer", "99999999999","XI", "B"]	
	["Swatantra", "8888888888","XII", "A"]	
	["Sajal","77777777777","VIII","A"]	
	["Yash", "1010101010","XII","A"]	
	The stack "xiia" should contain	
	["Swatantra", "8888888888"]	
	["Yash", "1010101010"]	
	The output should be:	
	["Yash", "1010101010"]	
	["Swatantra", "8888888888"]	
	Stack Empty	
	OR	
	Write a function in Python, Push(SItem) where, SItem is a dictionary containing the details of stationary items– {Sname:price}.	
	The function should push the names of those items in the stack who have price greater than 25. Also display the count of elements pushed into the stack.	
	For example:	
	If the dictionary contains the following data:	

Ditem = {"Rubber":5, "Pencil":5, "Pen":30, "Notebook": 60, "Eraser":5, "Watch": 250}

The stack should contain
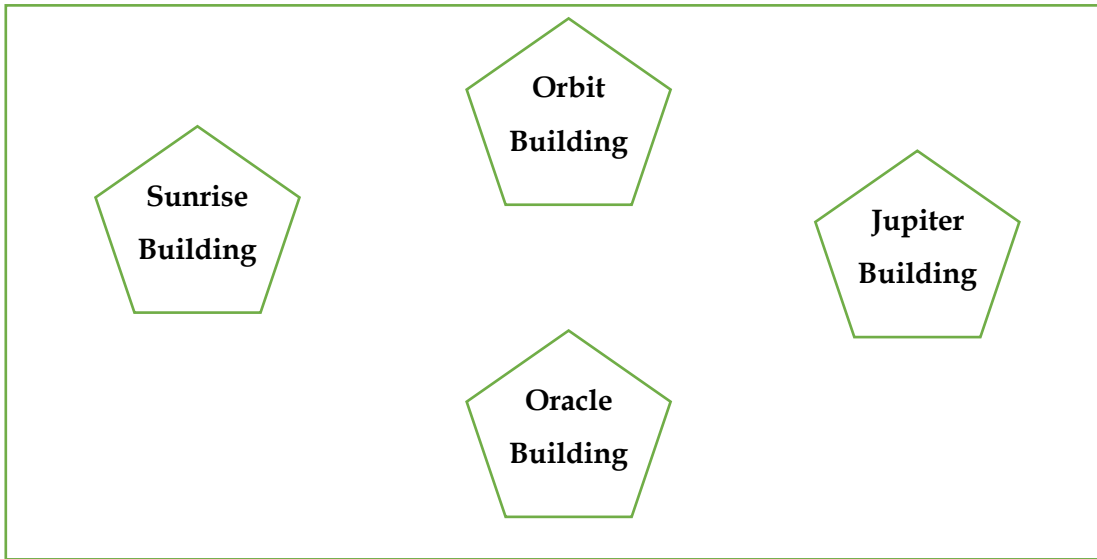
Pen

Notebook

Watch

The output should be:

The count of elements in the stack is 3

<div align="center">Section – D</div>

Q31. *Aryan Infotech Solutions has set up its new center at Kamla Nagar for its office and web based* (5)
activities. The company compound has 4 buildings as shown in the diagram below:

Distance between various buildings.	
Jupiter Building to Orbit Building	50 Mtrs
Orbit Building to Oracle Building	85 Mtrs.
Oracle Building to Sunrise Building	25 Mtrs.
Sunrise Building to Jupiter Building	170 Mtrs.
Jupiter Building to Oracle Building	125 Mtrs.
Orbit Building to Sunrise Building	45 Mtrs.

Number of Computers in each of the buildings is follows:	
Jupiter Building	30
Orbit Building	150

Oracle Building	15
Sunrise Building	35

i) Suggest a cable layout of connections between the buildings.

ii) Suggest the most suitable place (i.e. building) to house the server of this organisation with a suitable reason

iii) Suggest the placement of the following devices with justification:

      a. Internet Connecting Device/Modem

      b. Switch

iv) The organisation is planning to link its sale counter situated in various parts of the same city, which type of network out of LAN, MAN or WAN will be formed? Justify your answer.

v) What do your mean by PAN? Explain giving example.

Q32. (A) Write the output of the code given below: (2+3)

```
def printMe(q,r=2):
   p=r+q**3
   print(p)


#main-code
a=10
b=5
printMe(a,b)
printMe(r=4,q=2)
```

(B) The code given below inserts the following record in the table Student:

RollNo	Name	Clas	Marks
Integer	String	Integer	Integer

Note the following to establish connectivity between Python and MySQL:

* Username is root

* Password is toor@123

* The table exists in a "stud" database.

* The details (RollNo, Name, Clas and Marks) are to be accepted from the user.

Write the following missing statements to complete the code:

Statement 1 – to form the cursor object

Statement 2 – to execute the command that inserts the record in the table Student.

Statement 3 - to add the record permanently in the database

```
import mysql.connector as mysql
def sqlData():
    con1=mysql.connect(host="localhost",user="root", password="toor@123", database="stud")
    mycursor =  _____                              #Statement 1
    rno=int(input("Enter Roll Number :: "))
    name=input("Enter name :: ")
    clas=int(input("Enter class :: "))
    marks=int(input("Enter Marks :: "))
    querry="insert into student values({},'{}',{},{})".format(rno,name,clas,marks)
    _____                              #Statement 2
    _____                              # Statement 3
    print("Data Added successfully")
```

OR

(A) Predict the output of the code given below:

```
s="C++VsPy"
m=""
for i in range(0, len(s)):
    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)
```

(B) The code given below reads the following record from the table named student and displays only those records who have marks greater than 90:

RollNo	Name	Clas	Marks

Integer	String	Integer	Integer

Note the following to establish connectivity between Python and MySQL:

* Username is root

* Password is toor@123

* The table exists in a "stud" database.

Write the following missing statements to complete the code:

Statement 1 – to form the cursor object

Statement 2 – to execute the query that extracts records of those students whose marks are greater than 90.

Statement 3- to read the complete result of the query (records whose marks are greater than 90) into the object named data, from the table student in the database.

```
import mysql.connector as mysql
def sql_data():
    con1=mysql.connect(host="localhost",user="root",password="toor@123", database="stud")
    mycursor=_____                              #Statement 1
    print("Students with marks greater than 90 are : ")
    _____                           #Statement 2
    data=_____                                #Statement 3
    for i in data:
        print(i)
        print()
```

Q33.	What is the advantage of using a csv file for permanent storage?	(5)
	Write a Program in Python that defines and calls the following user defined functions:	
	(i) ADD() – To accept and add data of a teacher to a CSV file 'teacher.csv'. Each record consists of a list with field elements as tid, name and mobile to store teacher id, teacher name and teacher mobile number respectively.	
	(ii) COUNTRECORD() – To count the number of records present in the CSV file named 'teacher.csv'.	
	OR	
	Give any one point of difference between a binary file and a csv file.	
	Write a Program in Python that defines and calls the following user defined functions:	

	(i) add() – To accept and add data of an employee to a CSV file 'employee.csv'. Each record consists of a list with field elements as eid, name and salary to store employee id, employee name and employee salary respectively. (ii) search()- To display the records of the employee whose salary is more than 40000.	

<div align="center">Section – E</div>

Q34.	Layna creates a table STOCK to maintain computer stock in vidyalaya. After creation of the table, she has entered data of 8 items in the table. Table : STOCK | stockid	dopurchase	name	make	Price
---	---	---	---	---
101	2020-07-06	CPU	ACER	12000
102	2020-09-01	CPU	ACER	12750
103	2020-09-01	MONITOR	ACER	7500
104	2016-08-03	PROJECTOR	GLOBUS	37250
105	2016-05-26	VISUALIZER	GLOBUS	17500
106	2020-07-23	WIFI RECEIVER	ZEBION	450
107	2015-02-18	PRINTER	LEXMARK	38000

108	2020-07-23	HEADPHONE	BOAT	750 |
				
				Based on the data given above answer the following questions:
				    (i) Identify the most appropriate column, which can be considered as Primary key.
				    (ii) If three columns are added and 5 rows are deleted from the table stock, what will be the new degree and cardinality of the above table?
				    (iii) Write the statements to:
				        (a) Insert the following record into the table
				           Stockid - 201, dateofpurchase – 18-OCT-2022, name – neckphone
				           Make – BoAT, price - 500
				        (b) Decrease the price of stock by 5% whose were purchased in year 2020
				 OR (Option for part iii only)
				   (iii) Write the statements to:
				        (a) Delete the record of stock which were purchased before year 2015.
				        (b) Add a column STATUS in the table with datatype as char with 1 characters
					(1+
					1+
					2)

Q35.	Vishnu is a Python programmer. He has written a code and created a binary file record.dat with studentid, subjectcode and marks. The file contains 10 records. He now has to update a record based on the studentid id entered by the user and update the marks. The updated record is then to be written in the file temp.dat. The records which are not to be	(1+ 1+ 2)

updated also have to be written to the file temp.dat. If the student id is not found, an appropriate message should to be displayed.

As a Python expert, help him to complete the following code based on the requirement given above:

```
import _____                                    #Statement 1
def update_data():
  rec={}
  fin=open("record.dat","rb")
  fout=open("_____")                       #Statement 2
  found=False
   sid=int(input("Enter student id to update his marks :: "))
  while True:
      try:
          rec = _____                    #Statement 3
          if rec["studentid"]==sid:
              found=True
              rec["marks"]=int(input("Enter new marks  :: "))
               pickle._____                  #Statement 4
          else:
               pickle.dump(rec,fout)
      except:
           break
   if found==True:
        print ("The marks of studentid ", sid ," has been updated.")
   else:
        print("No student with such id is not found")
  fin.close()
  fout.close()
```

(i) Which module should be imported in the program? (Statement 1)

(ii) Write the correct statement required to open a temporary file named temp.dat. (Statement 2)

(iii) Which statement should Aryan fill in Statement 3 to read the data from the binary file, record.dat and in Statement 4 to write the updated data in the file, temp.dat?

0-O-o- End of Paper –o-O-0