KENDRIYA VIDYALAYA SANGATHAN LUCKNOW REGION
Class-XII
PreBoard-II Session: 2022-23
Computer Science (083)

Maximum Marks: 70 **Time Allowed: 3 Hours**

General Instructions:

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

SECTION A		
1.	State True or False. 'in' is a logical operator in Python.	1
2.	Which of the following is an invalid variable? (a) my_string_1 (b) 1st_string (c) foo (d) _A	1
3.	What will be the output for the following Python statements? D= {"Amit":90, "Reshma":96, "Suhail":92, "John":95} print("John" in D, 90 in D, sep= "#") (a) True#False (b)True#True (c) False#True (d) False#False	1
4.	Consider the following expression: not True and False or not False Which of the following will be the output: a) True b) False c) None d) NULL	1
5.	Select the correct output of the following code: >>>str1 = 'India is a Great Country' >>>str1.split('a') a) ['India', 'is', 'a',' Great', 'Country'] b) ['India', 'is', 'Great', 'Country'] c) ['Indi', 'is', 'Gre', 't Country'] d) ['Indi', 'is', 'Gre', 't', 'Country']	1
6.	Which of the following is an invalid access mode for text files: a) w b) a+ c) ab d) r	1
7.	Fill in the blanks: _____ command is used to add a new column in the table in SQL.	1
8.	Which of the following will display all the tables in a database: a) SELECT * FROM <tablename>; b) DISPLAY TABLES; c) SHOW TABLES; d) USE TABLES;	1
9.	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)	1
10.	Choose the correct option: _____ is the number of columns in a table and _____ is the number of rows in the table. a) Cardinality, Degree b) Degree, Cardinality c) Domain, Range d) Attribute, Tuple	1
11.	The correct syntax of load( ) is: a) <objectvariable> = pickle.load(<fileobject>) b) pickle.load(<fileobject>, <objectvariable>) c) <fileobject>.load(<objectvariable>)	1

	d) <objectvariable> = <fileobject>.load( )	
12.	The _____clause is used to display result of an SQL query in ascending or descending order with respect to specified attribute values.	1
13.	Fill in the blank: _____ is the protocol used for transferring files from one machine to another. a) HTTP b) FTP c) SMTP d) VOIP	1
14.	How will the following expression be evaluated in Python? 2 + 9 * ((3 * 12) – 8) / 10 a) 29.2 b) 25.2 c) 27.2 d) 27	1
15.	Which function is used to display the sum of values in a specified column ? a) COUNT(column) b) TOTAL(column) c) SUM(column) d) ADD(column)	1
16.	To open a connector to the MySQL database, which statement is used to connect with MySQL ? a) connector b) connect c) password d) username	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		
17.	Assertion (A) : A variable defined outside any function or any block is known as a global variable. Reason (R) : A variable defined inside any function or a block is known as a local variable.	1
18.	Assertion (A) : The tell( ) method returns an integer that specifies the current position of the file object in the file. Reason (R) : Offset can have any of the three values – 0, 1 and 2	1
SECTION B		
19.	**Rewrite** the following Python code after removing all syntax error(s). **Underline the corrections done**. Def main(): r = input(int('Enter radius')) A =pi * maths(pow)(r,2) Print("Area=",A)	2
20.	Write two points of difference between Circuit Switching and Packet Switching. **OR** Differentiate Web browser and Webserver.	2
21.	a. Given is a Python string declaration: myexam="@@CBSE Examination 2022@@" Write the output of: print(myexam[::-2]) b. Write the output of the code given below: my_dict = {"name": "Aman", "age": 26} my_dict['age'] = 27 my_dict['address'] = "Delhi" print(my_dict.items())	1+1
22.	Explain the use of 'Foreign Key' in a Relational Database Management System. Give example to support your answer.	2
23.	(a) Write the full forms of the following: (i) SMTP (ii) URL	1

	(b) Differentiate between http and https protocols.	1

24.	Predict the output of the Python code given below:
	value = 50
	def display(N):
	  global value
	  value = 25
	  if N%7==0:
	  value = value + N
	  else:
	  value = value - N
	print(value, end="#")
	display(20)
	print(value)
	OR
	Predict the output of the Python code given below:
	K=[ ]
	for i in range(4):
	  K.append(2*i+1)
	print(K[::-1])
		2

25.	Differentiate between drop and delete commands in SQL with appropriate example. **OR** What is the difference between CHAR & VARCHAR data types in SQL? Give an example for each.	2
	SECTION C	
26.	a) Considering the tables Uniform and Cost given below: Table: Uniform Table: Cost What will be the output of the following statement? SELECT * FROM Uniform NATURAL JOIN Cost; **b) Write the output of the queries (i) to (iv) based on the table given below:** Table: Activity i) SELECT PARTICIPANT, POINTS FROM Activity ORDER BY POINTS DESC; ii) SELECT HOUSE, COUNT(PARTICIPANT) FROM Activity GROUP BY HOUSE;	1+2

UCode	UName	UColour
1	Shirt	White
2	Pant	Grey
3	Tie	Black

UCode	Size	Price
1	L	550
1	M	500
2	L	850
2	M	810

PID	PARTICIPANT	GRADE	EVENT	POINTS	EVENTDATE	HOUSE
101	Ajay Devgan	A	Running	200	2022-02-03	Gandhi
102	John Abraham		Hopping Bag	300	2021-12-02	Bose
103	Sunny Deol	B	Skipping	200	2019-09-23	Gandhi
104	Akshay Kumar	A	Bean Bag	250	2020-11-14	Bhagat
105	Juhi Chawla	A	Obstacle	350	2022-03-17	Bose
106	Madhuri Dixit		Egg & Spoon	200	2021-10-15	Bose

iii) SELECT DISTINCT POINTS FROM Activity;
iv) SELECT PID, EVENTDATE FROM Activity WHERE EVENT = ”Running” OR EVENT =”Skipping”;

27. Write a method COUNTY() in Python to read content from text file ‘Text.txt’ and print total number of words ending with letter ‘y’. — 3

Example:
If the file ‘Text.txt’ content is as follows:

Shall I compare thee to a summer’s day?
Thou art more lovely and more temperate:
Rough winds do shake the darling buds of May,
And summer’s lease hath all too short a date;

The COUNTY() function should display the output as: 3

OR

A pre-existing text file info.txt has some text written in it. Write a python function countvowel() that reads the contents of the file and counts the occurrence of vowels(A,E,I,O,U) in the file.

28. (A) Consider the following tables BOOKS and ISSUED in a database named “LIBRARY”. Write SQL commands for the statements (i) to (iv). — 3

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 list of all databases.

29. Write a function SQUARE_LIST(L), where L is the list of elements passed as argument to the function. The function returns another list named ‘SList’ that stores the Squares of all Non-Zero Elements of L. — 3
For example:
If L contains [9,4,0,11,0,6,0]
The SList will have - [81,16,121,36]

30. A list contains following record of a customer: [Customer_name, Phone_number, City] — 3

Write the following user defined functions to perform given operations on the stack named 'status':

(i) Push_element() - To Push an object containing name and Phone number of customers who live in Goa to the stack

(ii) Pop_element() - 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 customer details are:

["Ashok", "9999999999","Goa"]
["Avinash", "8888888888","Mumbai"]
["Mahesh","77777777777","Cochin"]
["Rakesh", "66666666666","Goa"]

The stack should contain: ["Rakesh","66666666666"] ["Ashok"," 99999999999"]
The output should be:
["Rakesh","66666666666"] ["Ashok","99999999999"]
Stack Empty

OR

Vedika has created a dictionary containing names and marks as key-value pairs of 5 students. Write a program, with separate user-defined functions to perform the following operations:

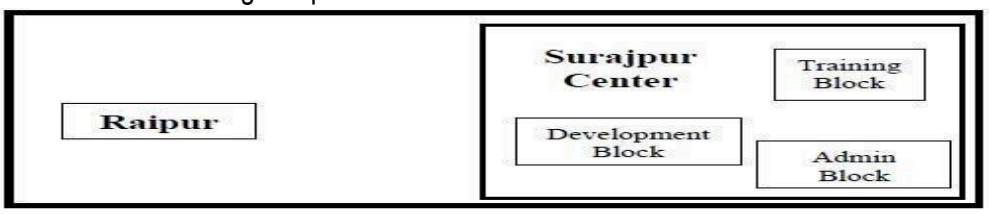
(i) Push the keys (name of the student) of the dictionary into a stack, where the corresponding value (marks) is greater than 70.

(ii) Pop and display the content of the stack.

The dictionary should be as follows:
d={"Ramesh":58, "Umesh":78, "Vishal":90, "Khushi":60, "Ishika":95}
Then the output will be:
Umesh Vishal Ishika

SECTION D

31. FutureTech Corporation, a Bihar based IT training and development company, is planning to set up training centers in various cities in the coming year. Their first center is coming up in Surajpur district. At Surajpur center, they are planning to have 3 different blocks - one for Admin, one for Training and one for Development. Each block has number of computers, which are required to be connected in a network for communication, data and resource sharing. As a network consultant of this company, you have to suggest the best network related solutions for them for issues/problems raised in question nos. (i) to (v), keeping in mind the distances between various blocks/locations and other given parameters. 1X5=5



Distance between various blocks/locations:

Block	Distance
Development to Admin	28 m
Development to Training	105 m
Admin to Training	32 m
Surajpur Campus to Coimbatore Campus	340 km

Number of computers:

Block	Number of Computers
Development	90
Admin	40
Training	50

(i) Suggest the most appropriate block/location to house the SERVER in the Surajpur center (out of the 3 blocks) to get the best and effective connectivity. Justify your answer.

(ii)Suggest why should a firewall be installed at the Surajpur Center?

(iii)Suggest the best wired medium and draw the cable layout (Block to Block) to most

efficiently connect various blocks within the Surajpur Center.

(iv)Suggest the placement of the following devices with appropriate reasons:

a) Switch/Hub b) Router

(v) Suggest the best possible way to provide wireless connectivity between Surajpur Center and Raipur Center.

32 (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().
```

33. 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) ADDPROD() – To accept and add data of a product to a CSV file ‘product.csv’. Each record consists of a list with field elements as prodid, name and price to store product id, product name and product price respectively.
(ii) COUNTPROD() – To count the number of records present in the CSV file named ‘product.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 a to a CSV file ‘stud.csv’. Each record consists of a list with field elements as admno, sname and per to store admission number, student name and percentage marks respectively.
(ii) search()- To display the records of the students whose percentage is more than 75.

SECTION E

34. Write SQL commands for the following queries based on the relation Teacher given below: 1+1+2

Table: Teacher

No	Name	Ag e	Department	Date_of_join	Salary	Sex
1	Jugal	34	Computer	10-01-1997	12000	M
2	Sharmila	31	History	24-03-1998	20000	F
3	Sandeep	32	Maths	12-12-1996	30000	M
4	Sangeeta	35	History	01-07-1999	40000	F
5	Rakesh	42	Maths	05-09-1997	25000	M
6	Shyam	50	History	27-06-1998	30000	M
7	Shiv Om	44	Computer	25-02-1997	21000	M
8	Shalakha	33	Maths	31-07-1997	20000	F

(i) To show all information about the teacher of Computer department.
(ii) To list the names of all teachers with their date of joining in descending order.
(iii) Write the statements to

	a) Delete the record of teacher age greater than 45 b)Increase the salary of teachers by 15% whose department is History **OR (Option for part iii only)** (iii) Write the statements to: a) To count the number of teachers with age less than 35 b) Add column QUALIFICATION in the table with datatype as varchar with 50 characters.	

35.	As a Python expert, help Rehaan to complete the following code based on the requirement given:
	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 their marks :: "))
	while True:
	try:
	rec=_____ #Statement 3
	if rec["Student_id"]==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 mark of student id ",sid," has been updated.")
	else:
	print("No student with such id is 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 Rehaan fill in Statement 3 to read the data from the binary filerecord.dat, and in Statement 4 to write the updated data in the file, temp.dat?
		1+1+2

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