

**KENDRIYA VIDYALAYA SANGATHAN, JAIPUR REGION****Class: XII Session: 2022-23 Computer Science (083)****PRE-BOARD EXAMINATION-I-2022-23 [S-1]****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 Q35 against part c only.
8. All programming questions are to be answered using Python Language only.

QNo	SECTION-A	Marks
1	Which command comes under TCL(Transaction Control Language)? (a)alter (b)update (c) grant (d) create	1
2	Which of the following is an invalid datatype in Python? (a) list (b) Dictionary (c) Tuple (d) Class	1
3	Given the following dictionaries dict_fruit={"Kiwi":"Brown", "Cherry":"Red"} dict_vegetable={"Tomato":"Red", "Brinjal":"Purple"} Which statement will merge the contents of both dictionaries?  (a) dict_fruit.update(dict_vegetable) (b) dict_fruit + dict_vegetable (c) dict_fruit.add(dict_vegetable) (d) dict_fruit.merge(dict_vegetable)	1
4	Consider the given expression: not False and False or True Which of the following will be correct output if the given expression is evaluated? True b.False c. NONE d. NULL	1
5	Select the correct output of the code: <pre>count = 0 while(True):     if count % 3 == 0:         print(count, end = " ")     if(count &gt; 15):         break;     count += 1</pre> (a) 0 1 2 ..... 15 (b) Infinite loop (c) 0 3 6 9 12 15 (d) 0 3 6 9 12	1
6	Which of the following is not a valid mode to open a file? (a) ab (b) r+ (c) w+ (d) rw	1

7	<p>Fill in the blank:  _____command is used to delete the table from the database of SQL.  (a) update (b)remove (c) alter (d) drop</p>	1
8	<p>Which of the following commands will use to change the structure of table in MYSQL database?  (a)DELETE TABLE (b)DROP TABLE  (c)REMOVE TABLE (d)ALTER TABLE</p>	1
9	<p>What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code?  import random  points=[20,40,10,30,15]  points=[30,50,20,40,45]  begin=random.randint(1,3)  last=random.randint(2,4)  for c in range(begin,last+1):  print(points[c],"#")  (a) 20#50#30# (b) 20#40#45  (c) 50#20#40# (d) both (b) and (c)</p>	1
10	<p>Fill in the blank:  _____is an attribute whose value is derived from the primary key of some other table.  (a) Primary Key (b) Foreign Key  (c) Candidate Key (d) Alternate Key</p>	1
11	<p>The <b>tell()</b> function returns:  (a) Number of bytes remaining to be read from the file  (b) Number of bytes already read from the file  (c) Number of the byte written to the file  (d) Total number of bytes in the file</p>	1
12	<p>Fill in the blank:  The SELECT statement when combined with_____function, returns number of rows present in the table.  (a) DISTINCT (b) UNIQUE (c) COUNT (d) AVG</p>	1
13	<p>Which switching technique follows the store and forward mechanism?  (a) Circuit switching (b) message switching  (c) packet switching (d) All of these</p>	1
14	<p>What will the following expression be evaluated to in Python?  <b>print(16-(3+2)*5+2**3*4)</b>  (a) 54 (b) 46 (c) 23 (d) 32</p>	1
15	<p>Which function is used to display the unique values of a column of a table?  (a) sum() (b) unique() (c)distinct() (d)return()</p>	1

16	To establish a connection between Python and SQL database, connect() is used. Which of the following value can be given to the keyword argument – host, while calling connect ()? (a) localhost (b) 127.0.0.1 (c) any one of (a) or (b) (d) localmachine	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	1
17	<b>Assertion (A):-</b> key word arguments are related to the function calls. <b>Reasoning (R):-</b> when you use keyword arguments in a function call, the caller identifies the arguments by parameter name.	1
18	<b>Assertion (A):</b> CSV stands for Comma Separated Values <b>Reason (R):</b> CSV files are a common file format for transferring and storing data.	1
<b>SECTION-B</b>		
19	Observe the following Python code very carefully and rewrite it after removing all syntactical errors with each correction underlined. DEF execmain(): x = input("Enter a number:") if (abs(x)== x) print("You entered a positive number") else: x=*1 print("Number made positive:" x )	2
20	Write two differences between Coaxial and Fiber transmission media. <b>OR</b> Write components of data communication.	2
21	(a) Given is a Python string declaration: message="Bring it on!!!" Write the output of: print(message[::-2]) (b) Write the output of the code given below: book_dict = {"title": "You can win", "copies":15} book_dict['author'] = "Shiv Khera" book_dict['genre'] = "Motivation" print(book_dict.items())	1+1 = 2
22	How many candidate key and primary key a table can have? Can we declare combination of fields as a primary key?	2
23	(a) Write the full forms of the following: (i) FTP      (ii) MAC (b) What is the use of TELNET?	1+1=2

24	<p>Predict the output of the Python code given below:</p> <pre>def Swap (a,b) :     if a&gt;b:         print("changed ",end="")         return b,a     else:         print("unchanged ",end="")         return a,b data=[11,22,16,50,30] for i in range (4,0,-1):     print(Swap(data[i],data[i-1]))</pre> <p style="text-align: center;"><b>OR</b></p> <p>Predict the output of the Python code given below:</p> <pre>P = (10, 20, 30, 40, 50 ,60,70,80,90) Q =list(P) R = [] for i in Q:     if i%3==0:         R.append(i) R = tuple(R) print(R)</pre>	2
25	<p>Differentiate between DDL and DML commands with suitable example.</p> <p style="text-align: center;"><b>OR</b></p> <p>What is the difference between WHERE and HAVING clause of SQL statement?</p>	2

**SECTION - C**

26	<p>(a)Consider the following tables – Bank_Account and Branch:</p> <p><b>Bank_Account:</b></p> <table border="1" data-bbox="451 1121 971 1291"> <thead> <tr> <th>ACode</th> <th>Name</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>A01</td> <td>Amit</td> <td>Savings</td> </tr> <tr> <td>A02</td> <td>Parth</td> <td>Current</td> </tr> <tr> <td>A03</td> <td>Mira</td> <td>Current</td> </tr> </tbody> </table> <p><b>Branch:</b></p> <table border="1" data-bbox="451 1325 961 1524"> <thead> <tr> <th>ACode</th> <th>City</th> </tr> </thead> <tbody> <tr> <td>A01</td> <td>Delhi</td> </tr> <tr> <td>A02</td> <td>Jaipur</td> </tr> <tr> <td>A01</td> <td>Ajmer</td> </tr> </tbody> </table> <p>What will be the output of the following statement?  <b>SELECT * FROM Bank_Account NATURAL JOIN Branch;</b></p> <p>(b) Give the output of the following sql statements as per table given above.</p> <p style="text-align: center;"><b>Table : SPORTS</b></p> <table border="1" data-bbox="302 1684 1351 1986"> <thead> <tr> <th>StudentNo</th> <th>Class</th> <th>Name</th> <th>Game1</th> <th>Grade1</th> <th>Game2</th> <th>Grade2</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>7</td> <td>Sammer</td> <td>Cricket</td> <td>B</td> <td>Swimming</td> <td>A</td> </tr> <tr> <td>11</td> <td>8</td> <td>Sujit</td> <td>Tennis</td> <td>A</td> <td>Skating</td> <td>C</td> </tr> <tr> <td>12</td> <td>7</td> <td>Kamal</td> <td>Swimming</td> <td>B</td> <td>Football</td> <td>B</td> </tr> <tr> <td>13</td> <td>7</td> <td>Venna</td> <td>Tennis</td> <td>C</td> <td>Tennis</td> <td>A</td> </tr> <tr> <td>14</td> <td>9</td> <td>Archana</td> <td>Basketball</td> <td>A</td> <td>Cricket</td> <td>A</td> </tr> <tr> <td>15</td> <td>10</td> <td>Arpit</td> <td>Cricket</td> <td>A</td> <td>Athletics</td> <td>C</td> </tr> </tbody> </table>	ACode	Name	Type	A01	Amit	Savings	A02	Parth	Current	A03	Mira	Current	ACode	City	A01	Delhi	A02	Jaipur	A01	Ajmer	StudentNo	Class	Name	Game1	Grade1	Game2	Grade2	10	7	Sammer	Cricket	B	Swimming	A	11	8	Sujit	Tennis	A	Skating	C	12	7	Kamal	Swimming	B	Football	B	13	7	Venna	Tennis	C	Tennis	A	14	9	Archana	Basketball	A	Cricket	A	15	10	Arpit	Cricket	A	Athletics	C	1+2=3
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- i. SELECT COUNT(\*) FROM SPORTS.
- ii. SELECT DISTINCT Class FROM SPORTS.
- iii. SELECT MAX(Class) FROM SPORTS;
- iv. SELECT COUNT(\*) FROM SPORTS GROUP BY Game1;

27 Write a method COUNTLINES() in Python to read lines from text file "TESTFILE.TXT" and display the lines which are starting with any article (a, an, the) insensitive of the case.  
 Example:  
 If the file content is as follows:  
 Give what you want to get.  
 We all pray for everyone's safety.  
 A marked difference will come in our country.  
 The Prime Minister is doing amazing things.

The COUNTLINES() function should display the output as:  
 The number of lines starting with any article are : 2

**OR**

Write a function GPCount() in Python, which should read each character of a text file "STORY.TXT" and then count and display the count of occurrence of alphabets G and P individually (including small cases g and p too).  
 Example:  
 If the file content is as follows:

God helps those who help themselves.  
 Great way to be happy is to remain positive.  
 Punctuality is a great virtue.

The GPCount() function should display the output as:  
**The number of G or g : 3**  
**The number of P or p : 6**

28 (a) consider the following tables School and Admin and answer the following questions: 2+1=3

**TABLE: SCHOOL**

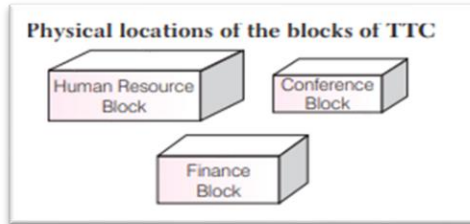
CODE	TEACHER	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI	ENGLISH	12/03/2000	24	10
1009	PRIYA	PHYSICS	03/09/1998	26	12
1203	LISA	ENGLISH	09/04/2000	27	5
1045	YASH RAJ	MATHS	24/08/2000	24	15
1123	GAGAN	PHYSICS	16/07/1999	28	3
1167	HARISH	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

**TABLE : ADMIN**

CODE	GENDER	DESIGNATION
1001	MALE	VICE PRINCIPAL
1009	FEMALE	COORDINATOR

	<table border="1"> <tbody> <tr> <td>1203</td> <td>FEMALE</td> <td>COORDINATOR</td> </tr> <tr> <td>1045</td> <td>MALE</td> <td>HOD</td> </tr> <tr> <td>1123</td> <td>MALE</td> <td>SENIOR TEACHER</td> </tr> <tr> <td>1167</td> <td>MALE</td> <td>SENIOR TEACHER</td> </tr> <tr> <td>1215</td> <td>MALE</td> <td>HOD</td> </tr> </tbody> </table> <p>Give the output of the following SQL queries:</p> <ol style="list-style-type: none"> <li>Select Designation, count(*) from Admin Group by Designation having count(*)&lt;2;</li> <li>Select max(experience) from school;</li> <li>Select teacher from school where experience &gt;12 order by teacher;</li> <li>Select count(*), gender from admin group by gender;</li> </ol> <p>(b) Write SQL command to delete a table from database.</p>	1203	FEMALE	COORDINATOR	1045	MALE	HOD	1123	MALE	SENIOR TEACHER	1167	MALE	SENIOR TEACHER	1215	MALE	HOD	
1203	FEMALE	COORDINATOR															
1045	MALE	HOD															
1123	MALE	SENIOR TEACHER															
1167	MALE	SENIOR TEACHER															
1215	MALE	HOD															
29	<p>Write a function Lshift(L), where L is the list of elements passes as an argument to the function. The function shifts all the elements by one place to the left and then print it.</p> <p>For example: If L contains [9,4,0,3,11,56]</p> <p>The function will print - [4,0,3,11,56,9]</p>	3															
30	<p>Write Add_New(Book) and Remove(Book) methods in Python to Add a new Book and Remove a Book from a List of Books, considering them to act as PUSH and POP operations of the data structure stack.</p> <p style="text-align: center;"><b>OR</b></p> <p>Aalia has a list containing 10 integers. You need to help him create a program with separate user defined functions to perform the following operations based on this list.</p> <ul style="list-style-type: none"> <li>➤ Traverse the content of the list and push the even numbers into a stack.</li> <li>➤ Pop and display the content of the stack.</li> </ul> <p>For example: If the sample content of the list is as follows: N=[12,13,34,56,21,79,98,22,35,38] Sample output of the code should be: 38 22 98 56 34 12</p>	1+2															
<b>SECTION - D</b>																	
31	<p>Trine Tech Corporation (TTC) is a professional consultancy company. The company is planning to set up their new offices in India with its hub at Hyderabad. As a network adviser, you have to understand their requirement and suggest them the best available solutions. Their queries are mentioned</p>	5															

as (i) to (v) below.



Block to block distance (in m)		
Block (From)	Block (To)	Distance
Human Resource	Conference	110
Human Resource	Finance	40
Conference	Finance	80

Expected number of computers	
Block	Computers
Human Resource	25
Finance	120
Conference	90

- Which will be the most appropriate block, where TTC should plan to install their server?
- Draw a block to block cable layout to connect all the buildings in the most appropriate manner for efficient communication.
- What will be the best possible connectivity out of the following, you will suggest to connect the new setup of offices in Bangalore with its London based office.
  - Satellite Link
  - Infrared
  - Ethernet
- Which of the following device will be suggested by you to connect each computer in each of the buildings?
  - Switch
  - Modem
  - Gateway
- Company is planning to connect its offices in Hyderabad which is less than 1 km. Which type of network will be formed?

32

(a) Write the output of the code given below:

```
p=25
def sum(q,r=3):
    global p
    p=r+q**2
    print(p, end= '#')
a=6
b=4
sum(a,b)
sum(r=5,q=1)
```

(b) The code given below inserts the following record in the table mobile:

```
import mysql.connector
mycon = mysql.connector.connect (host = "localhost", user = "Admin",
```

2+3=5

```

passwd = "Admin@123", database = "connect")
cursor = mycon.____ ( ) # Statement 1
sql = "INSERT INTO Mobile (Name, Model, Price, Qty) VALUES (%s, %s, %s, %s)" val = ("Samsung", "Galaxy Pro", 28000, 3)
cursor...____ (sql,val) #Statement 2
mycon.____ #Statement 3
Write the missing statement: Statement1 , Statement2 and Statement3

```

**OR**

**(a)** Predict the output of the code given below:

```

L1 = [100,900,300,400,500]
START = 1
SUM = 0
for C in range (START,4):
    SUM = SUM + L1[C]
    print (C,":",SUM)
    SUM = SUM + L1[0]*10
print (SUM)

```

**(b)** The code given below reads the following record from the tablename student and displays only those records who have marks greater than 80:

**RollNo - integer**  
**Name - string**  
**Clas - integer**  
**Marks - integer**

Note the following to establish connectivity between Python andMySQL:

- Username is root
- Password is tiger
- The table exists in a MYSQL database named kvs.

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 80.

Statement 3- to read the complete result of the query (records whose marks are greater than 80) 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="tiger",
    database="school")
    mycursor=_____ #Statement 1
    print("Students with marks greater than 75 are : ")
    _____ #Statement 2
    data=_____ #Statement 3
    for i in data:
        print(i)

```



33

(a) What does CSV stand for?

(b) Write a Program in Python that defines and calls the following user defined functions:

- (i) InsertRow() – To accept and insert data of an student to a CSV file 'class.csv'. Each record consists of a list with field elements as rollno, name and marks to store roll number, student's name and marks respectively.
- (ii) COUNTD() – To count and return the number of students who scored marks greater than 75 in the CSV file named 'class.csv'.

**OR**

Dhirendra is a programmer, who has recently been given a task to write a python code to perform the following CSV file operations with the help of two user defined functions/modules:

a. CSVOpen() : to create a CSV file called BOOKS.CSV in append mode containing information of books – Title, Author and Price.

b. CSVRead() : to display the records from the CSV file called BOOKS.CSV where the field title starts with 'R'.

He has succeeded in writing partial code and has missed out certain statements, so he has left certain queries in comment lines.

```
import csv
def CSVOpen():
    with open('books.csv', '__', newline='') as csvf:           #Statement-1
        cw=_____#Statement-2
        _____#Statement-3
        cw.writerow(['Rapunzel', 'Jack', 300])
        cw.writerow(['Barbie', 'Doll', 900])
        cw.writerow(['Johnny', 'Jane', 280])
def CSVRead():
    try:
        with open('books.csv', 'r') as csvf:
            cr=_____#Statement-4
            for r in cr:
                if _____:           #Statement-5 print(r)
    except:
        print('File Not Found')
CSVOpen()
CSVRead()
```

You as an expert of Python have to provide the missing statements and other related queries based on the following code of Raman.

- (i) Choose the appropriate mode in which the file is to be opened in append mode (Statement 1)
- (ii) Which statement will be used to create a csv writer object in Statement 2.
- (iii) Choose the correct option for Statement 3 to write the names of the column headings in the CSV file, BOOKS.CSV.
- (iv)
- (iv) Which statement will be used to read a csv file in Statement 4.
- (v) Fill in the appropriate statement to check the field Title starting with 'R' for Statement 5 in the above program.

1+2+2=

5

**SECTION -E**

34 Mayank creates a table RESULT with a set of records to maintain the marks secured by students in sub1, sub2, sub3 and their GRADE. After creation of the table, he has entered data of 7 students in the table.

**Table : RESULT**

ROLL_NO	SNAME	sub1	sub2	sub3	GRADE
101	KIRAN	366	410	402	I
102	NAYAN	300	350	325	I
103	ISHIKA	400	410	415	I
104	RENU	350	357	415	I
105	ARPITA	100	75	178	IV
106	SABRINA	100	205	217	II
107	NEELIMA	470	450	471	I
103	ISHIKA	400	410	415	I

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 two columns are added and 2 rows are deleted from the table result, 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  
Roll No- 108, Name- Aaditi, sub1- 470, sub2-444, sub3-475, Grade- I.
  - b. Increase the sub2 marks of the students by 3% whose name begins with 'N'.

**OR (Option for part iii only)**

- (iii) Write the statements to:
  - a. Delete the record of students securing Grade-IV.
  - b. Add a column REMARKS in the table with datatype as varcharwith 50 characters.

35 Reshabh is a programmer, who has recently been given a task to write a python code to perform the following binary file operations with the help of two user defined functions/modules:

- a. AddStudents() to create a binary file called STUDENT.DAT containing student information – roll number, name and marks (out of 100) of each student.
- b. GetStudents() to display the name and percentage of those students who have a percentage greater than 75. In case there is no student having percentage > 75 the function displays an appropriate message. The function should also display the average percent.

He has succeeded in writing partial code and has missed out certain statements, so he has left certain queries in comment lines. You as an expert of Python have to provide the missing statements and other related queries based on the following code of Reshabh.

```
import pickle
def AddStudents():
    _____# statement 1 to open the binary file to write data
    while True:
        Rno = int(input("Rno :"))
```

4

```

Name = input("Name : ")
Percent = float(input("Percent :"))
L = [Rno, Name, Percent]
_____#statement 2 to write the list L into the file
Choice = input("enter more (y/n): ")
if Choice in "nN":
    break
F.close()
def GetStudents():
    Total=0
    Countrec=0
    Countabove75=0
    with open("STUDENT.DAT","rb") as F:
        while True:
            try:
                _____#statement 3 to read from the file
                Countrec+=1
                Total+=R[2]
                if R[2] > 75:
                    print(R[1], " has percent =",R[2])
                    Countabove75+=1
            except:
                break
        if Countabove75==0:
            print("No student has percentage more than 75")
        print("average percent of class = ",_____)#statement 4
AddStudents()
GetStudents()

```

(i) Which of the following commands is used to open the file "STUDENT.DAT" for writing only in binary format? (marked as #1 in the Python code)

(ii) Which of the following commands is used to write the list L into the binary file, STUDENT.DAT? (marked as #2 in the Python code)

(iii) Which of the following commands is used to read each record from the binary file STUDENT.DAT? (marked as #3 in the Python code)

(iv) What expression will be placed in statement 4 to print the average percent of the class.

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