KENDRIYA VIDYALAYA SANGATHAN DELHI REGION

1st PRE-BOARD EXAMINATION 2022-23

COMPUTER SCIENCE (083)

Time Allowed : 3 Hours *Class: XIIth* *Max. Marks : 70*

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.
8. All programming questions are to be answered using Python Language only.

	SECTION - A	
1.	State True or False "An Identifier in Python may start with a digit."	1
2.	Identify the valid arithmetic operator in Python from the following. a) ? b) < c) ** d) and	1
3.	Suppose a tuple T is declared as T = (10, 12, 43, 39), which of the following is incorrect? a) print(T[1]) b) T[2] = -29 c) print(max(T)) d) print(len(T))	1
4.	Consider the given expression: True and False or not True Which of the following will be correct output if the given expression is evaluated? a)True b)False c) NONE d) NULL	1
5.	Select the correct output of the code: a = "We all are 2022 batch hardworking students" a = a.split('0') b = a[0] + "$ " + a[1] print (b) (a) Error (b) We all are 2$22 batch hardworking students (c) We all are $ batch hardworking students (d) We all are 2022 $ batch hardworking students	1
6.	Which of the following mode in file opening statement results or generates an error if the file does not exist? a) a+ b) r+ c) w+ d) None of the above	1
7.	Fill in the blank: _____ command is used to remove an attribute from a table in SQL. a) update b)remove c) alter d)drop	1
8.	Which of the following commands will delete the table from MYSQL database? a) DELETE TABLE b) DROP TABLE c) REMOVE TABLE d) ALTER TABLE	1

9.	Which of the following statement(s) would give an error after executing the following code?
	N="Kendriya Vidyalaya Sangathan" # Statement 1
	print(N) # Statement 2
	N="Welcomes" # Statement 3
	N[2]= '@' # Statement 4
		1

	N=N+"Thank you" # Statement 5 a) Statement 3 b) Statement 4 c) Statement 5 d) Statement 4 and 5	
10.	Fill in the blank: All the candidate keys other than the primary keys of a relation are known _____ of that relation.. a) Domain b) Foreign Key c) Alternate Key d) Other Key	1
11.	A text file student.txt is stored in the storage device. Identify the correct option out of the following options to open the file in read mode. i. myfile = open('student.txt','rb') ii. myfile = open('student.txt','w') iii. myfile = open('student.txt','r') iv. myfile = open('student.txt') a) only I b) both i and iv c) both iii and iv d) both i and iii	1
12.	Fill in the blank: The _____ clause in SELECT statement specifies the criteria for selection of rows to be returned. a) WHERE b) ORDER BY c) GROUP BY c) UPDATE	1
13.	A device used to connect dissimilar networks is called _____. a) Hub b) Gateway c) Bridge d) Repeater	1
14.	What will the following expression be evaluated to in Python? print(2 + 3*4//2 - 4) a) 4 b) -10 c) 6 d) 8	1
15.	The total number of rows in a table is called a) domain b) tuple c) field d) cardinality	1
16.	A python function may return multiple value (True/False):	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): Access mode 'a' opens a file for appending. Reason (R): The file pointer is at the end of the file if the file exists	1
18.	Assertion (A): Built in function are user defined functions which are created by the user Reason (R): print() and input ( ) are built in functions	1
SECTION - B		

19.	Sunil has written a code to input a number and find its factorial. His code is having errors. Rewrite the correct code and underline the corrections made.
	`def fact()`
	`  n=int(input("Enter number "))`
	`  f=1`
	`  for i  range (1, n+1):`
	`  f =* i`
	`  Print("factorial is",f)`
		2

20.	Give two advantages and two disadvantages of star topology OR Define the following terms: www , web hosting	2

21.	(a) If the following code is executed, what will be the output of the following code?
	`L=["A","B","C","D"]`
	`for I in L:`
	`  if I=="C":`
	`  print(I+L[0], end="")`
	
	(b) Write the output of the code given below :
	`stu_dict = {"name": "Rahul", "age": 17, "Marks":340}`
	`stu_dict['age'] = 19`
	`stu_dict['address'] = "Delhi"`
	`print(stu_dict.items())`
		1
		
		1

22.	Ravita is trying to solve Questions based on List slicing but she fails to solve ,assist her to solve following questions: Consider list L=[2,3,4,4,5,6,7,8,9] a) print(L[1:8:3]) b) print(L[-6:-1:2])	2
23.	(a) Write the full forms of the following: (i) XML (ii) VoIP (b) What is the use of TCP/IP?	2

24.	Predict the output of the Python code given below:
	`def change(s):`
	`  d = {"UPPER" : 0, "LOWER" : 0 }`
	`  for c in s:`
	`  if c.isupper():`
	`  d["UPPER"] += 1`
	`  elif c.islower():`
	`  d["LOWER"] += 1`
	`  print("Upper case count :", d["UPPER"])`
	`  print("Lower case count :", d["LOWER"])`
	`change("School Days are Happy")`
	OR
	Predict the output of the Python code given below:
		2

```
tuple1 = (11, 22, 33, 44, 55 ,66)
list1 =list(tuple1)
new_list = []
for i in list1:
    if i%2!=0:
        new_list.append(i)
new_tuple = tuple(new_list)
print(new_tuple)
```

25. Differentiate between WHERE and HAVING clause in SQL. — 2

OR

Categorize the following commands as DDL or DML:
CREATE, UPDATE, ALTER, DELETE

SECTION - C

26. (a) Consider the following tables – Bank_Account and Branch: — 1+2

Table: **Bank_Account**

ACode	Name	Type
A01	Amrita	Savings
A02	Parthodas	Current
A03	Miraben	Current

Table: **Branch**

ACode	City
A01	Delhi
A02	Mumbai
A03	Nagpur

Write the outputs of the SQL query:

```
Select A.ACode, Name, City
From Bank_Account A, Branch B
Where A.ACode=B.ACode;
```

(b)Write the output of the queries (i) to (iv) based on the table,SPORTS given below:

Table : **SPORTS**

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

(i) SELECT COUNT(*) FROM SPORTS.
(ii) SELECT DISTINCT Class FROM SPORTS.
(iii) SELECT MAX(Class) FROM STUDENT;
(iv) SELECT Game1, COUNT(*) FROM SPORTS GROUP BY Game1;

27. Write a function in Python that counts the number of “Me” or “My” words present in a text file “STORY.TXT”. — 3
If the “STORY.TXT” contents are as follows:

My first book was Me and
My Family. It gave me chance to be Known to the world.

The output of the function should be:
Count of Me/My in file: 4

OR

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

Whose woods these are I think I know.
His house is in the village though;
He will not see me stopping here to watch his woods fill up with snow.

The output of the function should be:
W or w : 1
H or h : 2

28. (a) Write the outputs for the following queries (i) to (iv) based on the relations EMPLOYEES and EMPSALARY given below — 3

Table: **EMPLOYEES**

Empid	Firstname	Lastname	Address	City
010	Ravi	Kumar	Raj nagar	GZB
105	Harry	Waltor	Gandhi nagar	GZB
152	Sam	Tones	33 Elm St.	Paris
215	Sarah	Ackerman	440 U.S. 110	Upton
244	Manila	Sengupta	24 Friends street	New Delhi
300	Robert	Samuel	9 Fifth Cross	Washington
335	Ritu	Tondon	Shastri Nagar	GZB
400	Rachel	Lee	121 Harrison St.	New York
441	Peter	Thompson	11 Red Road	Paris

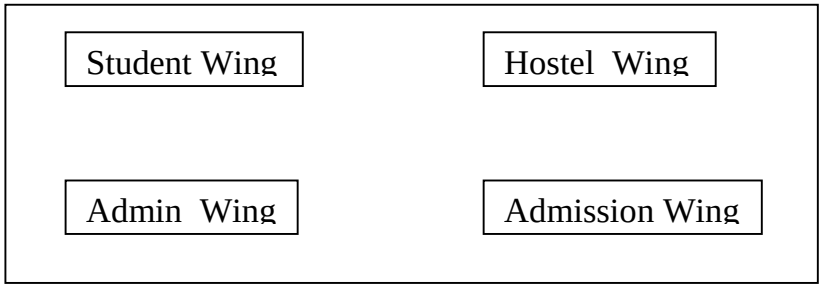
Table: **EMPSALARY**

Empid	Salary	Benefits	Designation
010	75000	15000	Manager
105	65000	15000	Manager
152	80000	25000	Director
215	75000	12500	Manager
244	50000	12000	Clerk
300	45000	10000	Clerk
335	40000	10000	Clerk
400	32000	7500	Salesman
441	28000	7500	salesman

(i) SELECT Firstname, Salary FROM Employees ,Empsalary WHERE Designation = 'Salesman' AND Employees.Empid=Empsalary.Empid;
(ii) SELECT count(distinct Designation) FROM Empsalary;
(iii) SELECT Designation, sum(Salary) FROM Empsalary group by Designation having count(*) >2;
(iv) SELECT Firstname, Benefits from Employees E , Empsalary S WHERE E.empid=S.empid AND Benifits <10000;

(b) Write the command to view all databases in mySql

29. Write a function change(L), where L is the list of elements passed as argument to the function. The function arrange odd number and even numbers separately in two lists and display them. — 3

	For example: If L = [10, 20, 30, 40, 12, 11,13,15] Then function will create and display two lists: List of even elements: [10, 20, 30, 40, 12] List of odd elements: [11, 13, 15]	
30.	A list contains following record of a Student: [Stud_no, name, Fee] Write the following user defined functions to perform given operations on the stack named EMP • Push_element()-to push an object containing Stud_no, name and Fee of student who are paying fee more than 5000 to the stack Stud • 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 student details: [1001,"John", 5500] [1002,"Angelia", 4000] [1003, "Amrit",7000] The stack should contain: [1001,"John", 5500] [1003, "Amrit",7000] The output of should be: [1001,"John", 5500] [1003, "Amrit",7000] Stack Empty OR Julie has created a dictionary containing names and marks as key value pairs of 6 students. Write a program, with separate user defined functions to perform the following operations: ● Push the keys (name of the student) of the dictionary into a stack, where the corresponding value (marks) is greater than 75. ● Pop and display the content of the stack. For example: If the sample content of the dictionary is as follows: R={"OM":76, "JAI":45, "BOB":89, "ALI":65, "ANU":90, "TOM":82} The output from the program should be: TOM ANU BOB OM	3
	SECTION - D	
31.	"NEXTGEN CLASSES" is located in Jaipur and is planning to go in for networking of four wings for better interaction. The details are as shown below  	5

The distance between various wings are :

Student to Admin	65m
Student to Admission	80m
Student to Hostel	325m
Admission to Admin	200m
Admission to Hostel	195m
Admin to Hostel	325m

Number of computers are :

Student Wing	312
Admission Wing	156
Admin Wing	26
Hostel Wing	125

(i) Suggest the most suitable place (i.e. Wing) to install the server of this organization with a suitable reason.

(ii) Suggest an ideal layout for connecting all Wings. Also write the type of Topology.

(iii) Suggest the placement of the following devices with reasons:

a) Repeater b) Switch

(iv) The Institute is planning to link its another branch "ABHI CLASSES" in Andaman & Nicobar. Suggest the type of network (LAN, MAN, WAN) and a fast and very effective wireless transmission medium to connect it with Jaipur, reasonably high speed is required, cost is not the factor. Justify your answer.

(v) Suggest a protocol that shall be needed to provide Video Conferencing solution between Jaipur and Andaman.

32. (a) Write the output of the code given below: 2+3=5

```
p=5
def sum(q,r=2):
    global p
    p=r+q**2
    print(p, end= '#')


a=10
b=5
sum(a,b)
sum(r=5,q=1)
```

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

Id – integer
Name – string
Game - String

Note the following to establish connectivity between Python and MYSQL:

- Username is root
- Password is tiger
- The table exists in a MYSQL database named Stu.
- The details (Id, Name and Game) 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 sql_data():
    con1=mysql.connect(host="localhost",user="root",password="tiger", \
    database="Stu")
     mycursor=_____________                    #Statement 1
     id =int(input("Enter id :: "))
     name=input("Enter name :: ")
    game=int(input("Enter game:: "))
    querry="insert into player  values({},'{}','{}')".format(id,name,game)
     _____________                             #Statement 2
     _____________                             # Statement 3
     print("Data Added successfully")
```

OR

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

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

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

(b) The code given below reads the following record from the table named Player and displays only those records who have Score greater than 75:

Id – integer
Name – string
Game – string
Score – integer

Note the following to establish connectivity between Python and MYSQL:

- Username is root
- Password is tiger
- The table exists in a MYSQL database name Game.

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 players whose Scores are greater than 60.
Statement 3 - to read the complete result of the query (records whose Scores are greater than 60) into the object named data, from thetable player in the database Game

```
import mysql.connector as mysql
def sql_data():
    con1=mysql.connect(host="localhost",user="root",password="tiger",
                                                    database="Game")
    mycursor=_____                    #Statement 1
    print("Players with Scores greater than 60 are :")
    _____                             #Statement 2
    data=_____                        #Statement 3
    for i in data:
        print(i)
```

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 userdefined functions:

(i) **ADD()** – To accept and add data of an item of shopping mall to a CSV file 'shop.csv'. Each record consists of a list with field elements as id, name and price to store item id, item name and item price respectively.
(ii) **COUNTR()** – To count the number of records present in the CSVfile named 'shop.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 mobile user to a CSV file 'mobile.csv'. Each record consists of a list with elements as id, name, mob_no, bill to store id, name, mobile number and mobile bill respectively.
(ii) **search()** - To display the records of the person having mobile bill is more than 1000.

SECTION - E

34. Consider the following table ITEM: 4

Table: **ITEM**

ITEMNO	NAME	PRICE
101	BOOK	20
102	PENCIL	4
103	PEN	15
104	ERASER	5
105	PEN	30

Based on the table 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 2 rows are deleted from the table ITEM, 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 : ITEMNO - 108, NAME- NOTEBOOK, PRICE- 80. (b) Increase the PRICE of the items by 10% whose name begins with 'P'. OR (Option for part iii only) (iii) Write the statements to: a. Delete the record of items having price less than 10. b. Add a column BRAND_NAME in the table with datatype as varchar with 30 characters.	
35.	Amritya Seth 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 Percentage 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 based on the following code of Amritya.	4

```
import _________          # Statement-1
def AddStudents():
    _________________     # Statement-2 to open the binary file to write data
    while True:
        Rno = int(input("Rno :"))
        Name = input("Name : ")
        Percent = float(input("Percent :"))
        L = [Rno, Name, Percent]
        __________        # Statement-3 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- 4 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("There is no student who has percentage more than 75")
                average=Total/Countrec
                print("average percent of class = ",average)
AddStudents()
GetStudents()
```

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

(ii) Write the correct statement required to open binary file STUDENT.DAT to write data. (Statement 2)

(iii) Which statement should Amritya Seth fill in Statement-3 to write the list L into the file ?

(iv) Which statement should Amritya Seth fill in Statement- 4 to read the data from the binary file, STUDENT.DAT .

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