Roll No. | | | | | | | | |

Code No. CS/XII/PB1/202324 **SUBJECT CODE 083**

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 Q35 against part c only.
- All programming questions are to be answered using Python Language only.

ARMY PUBLIC SCHOOL BINNAGURI

COMPUTER SCIENCE

Time allowed: 3 hours *Maximum Marks: 70*

	SECTION A	
1.	State True or False "Dictionaries in Python are mutable but Strings are immutable."	1
2.	Which of the following is/are invalid identifiers in Python? (a) unique (b) null (c) complex (d) Real	1
3.	Name the Python Library module which need to be imported to invoke the following function (i) seek() (ii) connect()	1
4.	Consider the given expression: `True and not AAA and not True or True` Which of the following will be correct output if the given expression is evaluated with AAA as False? (a) True (b) False (c) NONE (d) NULL	1

5.	Find and write the output of following python code:
	`a=100`
	`def show():`
	`  global a`
	`  a=-80`
	`def invoke(x=5):`
	`  global a`
	`  a=50+x`
	`show()`
	`invoke(2)`
	`invoke()`
	`print(a)`
		1

6.	Which all of the following modes in file opening statement don't result or generate an error if the file does not exist? (a) r (b) r+ (c) w+ (d) a	1

7.	Fill in the blank: _____ command is used for type modification of a column in a table in SQL. (a) `update` (b) `remove` (c) `alter` (d) `drop`	1
8.	Which of the following commands will modify a column's datatype in the table from MYSQL database? (a) CHANGE COLUMN (b) MODIFY TABLE (c) REMOVE TABLE (d) ALTER TABLE	1

9.	Which of the following statement(s) would give an error after executing the following code?
	`S="Welcome to class XII" # Statement 1`
	`print(S) # Statement 2`
	`S=3*"Thank you" # Statement 3`
	`S += chr(45) # Statement 4`
	`S=S+"Thank you" # Statement 5`
	(a) Statement 3
	(b) Statement 4
	(c) Statement 5
	(d) None of these
		1

10.	Fill in the blank: _____is a key attribute, which is used to slice out records relevantly when we join multiple tables. (a) Primary Key (b) Foreign Key (c) Candidate Key (d) Alternate Key	1
11.	The correct syntax of tell() is: (a) `file_object.tell(offset [, reference_point])` (b) `pickle.tell(file_object)` (c) `tell(offset, file_object)` (d) `file_object.tell()`	1
12.	Fill in the blank: The SELECT statement when combined _____,returns result-set without any repeated values. (a) ORDER BY (b) UNIQUE (c) GROUP BY (d) DISTINCT	1
13.	Fill in the blank: _____is a communication medium, classified as long distance high speed unguided medium. (a) Optical fiber (b) Microwave (c) Satellite Link (d)WIMAX	1
14.	What will the following expression be evaluated to in Python? `print(15 // 4 + (8 // 3)/5)` (a) 14.75 (b)14.0 (c) 4.4 (d) 3.4	1

15.	Which function usage is used to display the total number of non-null values in a column "Sub" from table in a database? (a) `unique(sub)` (b) `sum(Sub)` (c) `count(Sub)` (d) `count(distinct sub)`	1
16.	To open a file c:\scores.txt for reading and writing with restrictions on creation of new files, we use a) infile = open("c:\scores.txt", "r+") b) infile = open("c:\\scores.txt", "w+") c) infile = open(file = "c:\scores.txt", "a") d) infile = open(file = "c:\\scores.txt", "rb")	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):** CSV (Comma Separated Values) is a file format for data storage that looks like a text file. **Reason (R):** The information is organized with one record on each line and each field is separated by a comma.	1
18.	**Assertion:** The internet is a collection of interconnected computer networks, linked by transmission medium such as fibre optic cables, transmission wires, wireless connections, etc. **Reason:** World Wide Web is a collection of websites or web pages stored in web servers and connected to local computers through the internet.	1
	SECTION B	

19.	Find and write the output of following python code:
	`def Alter(M,N=50):`
	`  N = M + N`
	`  M = M - N`
	`  print(M,"@",N)`
	`  return M`
	
	`A=200`
	`B=100`
	`A = Alter(B,A)`
	`print(A,"#",B)`
	`B = Alter(B+A)`
		2

20.	Explain the term Switching in Networking. Mention its classifications. **OR** What is Unguided Media? Explain why it is better in context of Long distance communication.	2
21.	(a) 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)) (b) Identify the correct option to print the value 'RRR' from the list L=[10,20,'R',80,20,5,'RRR'] (i) L[2]*3 (ii) L[-4] (iii) L['RRR'] (iv) L['R'*3]	1 1
22.	What is where clause? What is the difference between Like and In.	2

23. Give the full form of: **2**

(i) VoIP

(ii) UTP

24. Find and write the output of the following python code: **2**

```
def display(s):
    l = len(s)
    m=""
    for i in range(0,l):
        if s[i].isupper():
            m=m+chr(ord(s[i])-2)
        elif s[i].islower():
            m=m+chr(ord(s[i])-2)
        elif s[i].isdigit():
            m=m+chr(ord(s[i])+1)
        else:
            m=m+" "
    print(m)

display("Kpfkc yqp KEE YE 1M12")
```

OR

Find and write the output of the following python code:

```
d={}
d[100]=100
d['100']=200
d[100.0]=50
sum=0
print(d)
for i in d:
    sum+=d[int(i)]
print(sum)
```

25. What do you understand by VARCHAR datatype in a table? Give a suitable example and differentiate the same with the data type CHAR. **2**

OR

Categorize the following commands as Group by /Math function:
count(), pow(), round(), avg()

SECTION C

26. (a) Which clause is used to compare value in any column with a given range of data? **1+2**

(b) Write the SQL Queries for (i) to (iv) based on ITEMS table

Pid	Surname	FirstName	Gender	City	PinCode	BasicSalary
1	Sharma	Geeta	F	Udhamwara	182141	50000
2	Singh	Surinder	M	Kupwara Nagar	193222	75000
3	Jacob	Peter	M	Bhawani	185155	45000
4	Alvis	Thomas	M	Ahmed Nagar	380025	50000
5	Mohan	Garima	M	Nagar Coolangatta	390026	33000
6	Azmi	Simi	F	New Delhi	110021	40000
7	Kaur	Manpreet	F	Udhamwara	182141	42000

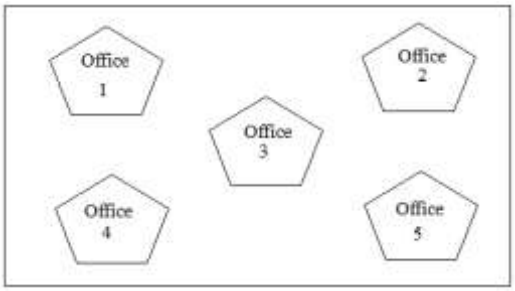
(i) Display the SurNames, FirstNames and Cities of people residing in Udhamwara city.

(ii) Display the Person Ids (PID), cities and Pincodes of persons in descending order of Pincodes.

(iii) Display the First Names and cities of all the females getting Basic salaries above 40000.

(iv) Display the highest Basic Salary among all male staff.

<table>
<tr><td>27.</td><td>Write a function in python to read lines from file “POEM.txt” and count how many times the word starting with vowel & ending with letter ‘y’ exists in the file.
OR
Write a function in python to count the number of lines in “POEM.txt” begins from Upper case character but ending with a lower case character.</td><td>3</td></tr>
<tr><td>28.</td><td>Write the SQL queries for (i) to (iii) based on the following relations given below:
Table : SALES
<table><tr><th>SALESMANID</th><th>NAME</th><th>SALES</th><th>LOCATIONID</th></tr><tr><td>S1</td><td>ANITA SINGH ARORA</td><td>250000</td><td>102</td></tr><tr><td>S2</td><td>Y.P. SINGH</td><td>1300000</td><td>101</td></tr><tr><td>S3</td><td>TINA JAISWAL</td><td>1400000</td><td>103</td></tr><tr><td>S4</td><td>GURDEEP SINGH</td><td>1250000</td><td>102</td></tr><tr><td>S5</td><td>SIMI FAIZAL</td><td>1450000</td><td>103</td></tr></table>Table : LOCATION
<table><tr><th>LOCATIONID</th><th>LOCATIONNAME</th></tr><tr><td>101</td><td>Delhi</td></tr><tr><td>102</td><td>Mumbai</td></tr><tr><td>103</td><td>Kolkata</td></tr><tr><td>104</td><td>Chennai</td></tr></table>Write SQL queries for the following :
(i) To display SalesmanID, names of salesmen, LocationID with corresponding location names.
(ii) To display names of salesmen, sales and corresponding location names who have achieved Sales more than 1300000
(iii) To display the names of employes working in Kolkata.</td><td>3</td></tr>
<tr><td>29.</td><td>Write a function RShift(Arr) in Python, which accepts a list Arr of numbers and places all even elements of the list shifted to left.
Sample Input Data of the list
Arr= [10,21,30,45,12,11],
Output
Arr = [10, 30, 12, 21, 45, 11]</td><td>3</td></tr>
<tr><td>30.</td><td>Write a function in Python PUSH(Arr,Arr1,Arr2), where Arr is a list of names. From this list push all names present in Arr1 but not in Arr2 into a stack STK implemented by using a list. Display the stack if it has at least one element, otherwise display appropriate error message.
OR
Write a function in Python PUSH(Arr), where Arr is a list of numbers. From this list push all numbers that are prime into a stack STK implemented by using a list. Display the stack if it has at least one element, otherwise display appropriate error message.</td><td>3</td></tr>
<tr><td colspan="3">SECTION D</td></tr>
</table>

31.	A football stadium has 25000 numbered seats. During the season, supporters can buy tickets for matches at one of five ticket offices located in the city. Supporters of the club are given a plastic card. The plastic card information that can be scanned into a computer. Supporters who attend more than five matches in a season are given a discount when they book for additional matches. The layout of the five ticket offices are given below: **Office to Office distance (in KMs)** From / To / Distance(KM) Office – 1 / Office -2 / 15 Office – 1 / Office - 3 / 3 Office – 3 / Office – 2 / 3 Office - 1 / Office – 4 / 7 Office – 2 / Office -5 / 7 Office – 5 / Office – 4 / 15 Office – 3 / Office – 4 / 6 Office – 3 / Office – 5 / 6 **Number of Workstations in each ticket office** Ticket Office / Workstation 1 / 5 2 / 3 3 / 7 4 / 5 5 / 3  **Note:** The Stadium Manager likes to link all the ticket offices, so that each ticket office workstation will display which seats have not yet been sold, and no two supporters will get the same seat. As a network expert answer the following questions : i) State the type of network used (2) • Within the office • Between the five offices ii) Identify **two** items of hardware that affect communication speed. Communication between the offices needs speeding up. Outline **one** way in which the use of communications between the offices improves the working efficiency of the business. (1) iii) Suggest the most appropriate office to install the server to keep track of the booking of tickets. (1) iv) Draw an office to office cable layout to connect all the offices in the most appropriate manner for efficient communication. (1)	5

32.	(a) Write the output of the code given below:
	`p=5`
	`def sum(q,r=2):`
	`  global p`
	`  p=r+q**2`
	`  print(p, end= '#')`
	`a=10`
	`b=5`
	`sum(r=-a,q=b)`
	`sum(-5)`
		2+3

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

RollNo – integer
Name – string
Clas – integer
Marks – integer

Note the following to establish connectivity between Python and MYSQL:

- Username is root
- Password is root
- The table exists in a MYSQL database named `school`.
- 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 frame the SQL command statement that inserts the record in thetable Student.
Statement 3- to finalize the adding of the record permanently in the database

```
import mysql.connector as mysql

def sql_data():
   con1= mysql.connect(host="localhost",user="root",
     passwd="root", database="school")
   mycursor= _____________________________     #Statement 1
   rno=int(input("Enter Roll Number :: "))
   name=input("Enter name :: ")
   clas=int(input("Enter class :: "))
   marks=int(input("Enter Marks :: "))
   querry = ____________________________________  #Statement 2
   mycursor.execute(querry)
   mycursor._____________________                #Statement 3
   print("Data Added successfully")
```

OR

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

```
s="score good in cs"
n = len(s)
m=""
for i in range(0, n):
    if (s[i] >= 'e' and s[i] < 'g'):
        m = m +s[i+1]
    elif (s[i] >= 't' and s[i] <= 'z'):
        m = m +chr(ord(s[i])+2)
    elif (s[i].islower()):
        m = m + s[i].upper()
    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 75:

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

Note the following to establish connectivity between Python and MYSQL:

- **Username is root**
- **Password is root**
- **The table exists in a MYSQL database named `school`.**

Write the following missing statements to complete the code:
Statement 1 - to import from the module
Statement 2 - to connect the host computer.
Statement 3 - to collect the entire records fetched.

```
from __________ import ________          #Statement-1
dataBase = m.connect(host =___________,
user="root",  passwd ="root", database = "school")
                                         #Statement 2
cursorObject = dataBase.cursor()
query = "SELECT * FROM STUDENT where marks>75"
cursorObject.execute(query)
myresult = ____________________          #Statement 3
for x in myresult:
   print(x)
cursorObject.close()
```

33. Write a program to display the highest marks scored by students from the data as stored in Stu.csv. The structure of the csv file is: 5

Rollno, Name, Marks
1, Aman, 35
2, Kanak, 1
3, Anuj, 33
4, suman, 25

OR

Write a program to add/insert records in file "data.csv". Structure of a record is roll number, name and class.

SECTION E

In a Database - STOCK and SALES are two tables with the following Information. Write MySQL queries for (i) to (iii), based on tables STOCK and SALES:

Table: STOCK

Goods_Id	Goods_Name	QTY_of_ Good_ Received	Qty_of_ Good_ Issued	Date_of_ Issue	Sales_ID
1001	Locks	27	7	2014-12-27	S01
1002	Books	45	5	2014-12-25	S02
1003	Sugar	44	8	2014-12-15	S03
1004	Salt	35	12	2014-12-09	S04
1005	Notebook	20	9	2015-01-03	S03

	Table: SALES **Sales_ID** | **Sales_Type** | **AMOUNT** S01 | Cash | 20000 S02 | Credit | 15000 S03 | Net banking | 18000 S04 | Cash | 22000 S05 | Credit | 17000 (i) To display detail of good whose Sales_Type in sales table is cash (ii) To display Goods_Id, Goods_Name, Sales_ID of all goods whose Amount is Greater than 20000. (iii) Display the detail of goods in stock whose sales id is "S03".[use natural join] **OR(only against Ser no iii)** (i) Display the detail of goods in stock whose Sales type is not Net Banking".[use natural join]	
35.	Write a function addmarks (name) in Python which will add the marks of all the subjects of a student whose name is passed as an argument from "marks.dat". Structure of "marks.dat" is [Name, Chem_marks, Phy_marks, CS_marks, Eng_marks] OR Write a function addval() in Python which will add the record of a mobile in "mobile.dat". Structure of "mobile.dat" is [Mobile id, Mobile brand, Model No., Price]	4