

(SET 1)
Computer Science (083)
PRE BOARD EXAMINATION 2023-24
Class XII

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.

SECTION A		
1.	State True or False “Dictionaries in python are mutable.”	1
2.	Which of the following is an invalid identifier a)myname b)p9tv c)def d)_new	1
3.	Which one of the following is the function to get list of keys from a dictionary dict in python? a. dict.getkeys() b. dict.getvalues() c. dict.keys() d. None Of These	1
4.	Consider the given expression: True OR NOT False AND 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: Str=”I will Succeed”	1

	<pre>lis=str.split(" ") print(lis[-1])</pre> <p>(a) I (b) will (c) Succeed (d) "I will Succeed"</p>	
6.	<p>Which of the following methods will give the current position of the file pointer?</p> <p>(a)seek() (b)tell() (c)getloc()(d) None of the above</p>	1
7.	<p>Fill in the blank:</p> <p>_____Command is used to change the structure of the table in SQL.</p> <p>(a)update (b)remove (c)alter (d)drop</p>	1
8.	<p>Which of the following commands will delete the row of the table from MYSQL database?</p> <p>(a) DELETE (b) DROPTABLE (c) REMOVETABLE (d) ALTERTABLE</p>	1
9.	<p>Which of the following statement(s) would give an error after executing the following code?</p> <pre>T=(8,9,7,6) # Statement 1 print(T) # Statement2 T=(7,9,7,6) # Statement3 T[1]=8 # Statement4 T=T+(1,2,3) # Statement5</pre> <p>(a) Statement3 (b) Statement4 (c) Statement5 (d) Statement 4 and5</p>	1
10.	<p>Fill in the blank:</p> <p>_____is an attribute or set of attributes eligible to become primary key.</p> <p>(a) PrimaryKey (b) ForeignKey (c) CandidateKey</p>	1

	(d) Alternate Key	
11.	The default mode of opening a file in python (a) append (b) read (c) write (d) both b and c	1
12.	Which of the following can be used as command to get the structure of a table in mysql (a) DESCRIBE (b) UNIQUE (c) DISTINCT (d) NULL	1
13.	Fill in the blank: _____ Is the protocol used for server to server mail transfer? (a)VoIP (b)SMTP (c)PPP (d)HTTP	1
14.	What will the following expression be evaluated to in Python? print(2**3**2//8) (a)64.0 (b)64 (c)8 (d)None Of These	1
15.	Which clause is used to apply conditions with GROUP BY (a) WHERE (b) HAVING (c) LIKE (d) None Of These	1
16.	Which function is used to establish connection between python and SQL database? (a) connection (b) connect (c) getconnection (d) getconnect	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		

[illegible]

24.	<div>Predict the output of the Python code given below:</div> <pre>def product(L1,L2): p=0 for i in L1: for j in L2: p=p+i*j return p LIST=[1,2,3,4,5,6] l1=[] l2=[] for i in LIST: if(i%2==0): l1.append(i) else: l2.append(i) print(product(l1,l2))</pre> <div>OR</div> <div>Predict the output of the Python code given below:</div> <pre>tuple1 = (33, 24, 44, 42, 54 ,65) list1 =list(tuple1) new_list = [] for i in list1: if i>40: new_list.append(i) new_tuple = tuple(new_list) print(new_tuple)</pre>	2																						
25.	<div>Explain the use of DISTINCT keyword in python with appropriate example</div> <div>OR</div> <div>What is called DDL commands in mysql?Give examples?</div>	2																						
SECTION C																								
26.	<div>a)Consider the following tables -Product and Supplier:</div> <div>Table:Product</div> <table><tr><td>Pid</td><td>pname</td><td>sid</td></tr><tr><td>P1</td><td>pen</td><td>S1</td></tr><tr><td>P2</td><td>ball</td><td>S2</td></tr><tr><td>P3</td><td>pencil</td><td>S3</td></tr></table> <div>Table:Supplier</div> <table><tr><td>Sid</td><td>sname</td></tr><tr><td>S1</td><td>Anmol</td></tr><tr><td>S2</td><td>Aradhya</td></tr><tr><td>S3</td><td>Sunil</td></tr><tr><td>S4</td><td>Vishal</td></tr></table>	Pid	pname	sid	P1	pen	S1	P2	ball	S2	P3	pencil	S3	Sid	sname	S1	Anmol	S2	Aradhya	S3	Sunil	S4	Vishal	1+2
Pid	pname	sid																						
P1	pen	S1																						
P2	ball	S2																						
P3	pencil	S3																						
Sid	sname																							
S1	Anmol																							
S2	Aradhya																							
S3	Sunil																							
S4	Vishal																							

What will be the output of the following statement?

SELECT * FROM product NATURAL JOIN SUPPLIER;

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

Empid	Empname	Salary	Deptid
E1	Prabhath	12000	D1
E2	Nikhil	14000	D1
E3	Devansh	10000	D2
E4	Debraj	15000	D3
E5	Aron	18000	D1

(i) SELECT DISTINCT deptid from Employee;

(ii) SELECT deptid, count(*), min(salary) from employee GROUP BY deptid HAVING count(deptid) > 2;

(iii) SELECT empname FROM employee WHERE salary > 14000 ORDER BY empname;

(iv) SELECT SUM(SALARY) FROM Employee WHERE SALARY BETWEEN 15000 AND 18000;

27. Write a method COUNTLINES() in python to read lines from text file MYSTORY.TXT and display the count of lines which are starting with letter T

Example: if the file content is as follows:

Trees are the precious

We should protect trees

This way we can serve nature

The COUNTLINES() function should display output as:

The number of lines starting with letter T : 2

OR

Write a function COUNTOWEL() IN PYTHON which should read each character of a text file CHARACTER.TXT and display the count of vowels

Example:

If the file content is as follows:

Exam is going on well

The COUNTOWEL() function should display the output as: 7

28. (a) Write the outputs of the SQL queries (i) to (iv) based on the relations Teacher and Placement given below:

BOOK

Book_id	Book_name	Price	Qty	Author_id
---------	-----------	-------	-----	-----------

1001	My first C++	323	12	204
1002	SQL basics	462	6	202
1003	Thunderbolts	248	10	203
1004	The tears	518	3	204

AUTHOR

Author id	Author name	Country
201	William Hopkins	Australia
202	Anita	India
203	Anna Roberts	USA
204	Brain Brooke	Italy

- (i) SELECT Author_id, avg(price) from BOOK GROUP BY Author_id;
 ii) SELECT MAX(price),MIN(price) from BOOK;
 ii) SELECT Book_name,Author_name,country from BOOK B, AUTHOR A
 WHERE B.Author_id = A.Author_id AND price>300;
 iv) SELECT Author_name from AUTHOR WHERE Author_name LIKE "A%";

29.	<p>Write a function EVEN_LIST(L), where L is the list of elements passed as argument to the function. The function returns another list named 'even list' that stores even numbers in the list.</p> <p>For example:</p> <p>If L contains [1,2,3,4,5,6,7,8]</p> <p>The even list will have - [2,4,6,8]</p>	3
30.	<p>A list contains following record of a student: [student_name, age, hostel]</p> <p>Write the following user defined functions to perform given operations on the stack named 'stud_details':</p> <p>(i) Push_element() - To Push an object containing name and age of students who live in hostel "Ganga" to the stack</p> <p>(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.</p> <p>For example:</p> <p>If the lists of customer details are:</p> <p>["Barsat",17,"Ganga"] ["Ruben", 16,"Kaveri"] ["Rupesh",19,"Yamuna"]</p> <p>The stack should contain ["Barsat",17,"Ganga"]</p> <p>The output should be: ["Barsat",17,"Ganga"] Stack Empty</p> <p style="text-align: center;">OR</p>	3

A list named as Record contains following format of for students: [student_name, class, city].

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

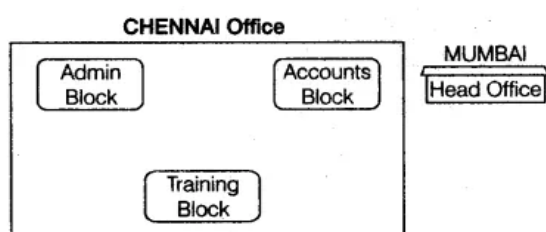
(i) Push_record(Record) – To pass the list Record = [['Rahul', 12,'Delhi'], ['Kohli',11,'Mumbai'], ['Rohit',12,'Delhi']] and then Push an object containing Student name, Class and City of student belongs to 'Delhi' to the stack Record and display and return the contents of stack

(ii) Pop_record(Record) – To pass following Record [["Rohit","12","Delhi"] ["Rahul", 12,"Delhi"]] and then to Pop all the objects from the stack and at last display "Stack Empty" when there is no student record in the stack. Thus the output should be: -
 ["Rohit","12","Delhi"]
 ["Rahul", 12,"Delhi"]
 Stack Empty

SECTION D

31

Hi-tech Training center, a Mumbai based organization is planning to expand their training institute to Chennai. At Chennai compound, they are planning to have three different blocks for admin, training and accounts related activities. As a network consultant you have to suggest some network related solutions to the organization



Shortest distance between the blocks are given below:

Admin □ Accounts 300 meters

Accounts □ training 150 meters

Admin □ Training 200 meters

Mumbai □ Chennai office 1300 KM

Number of computers installed in each block are as follows:

Training Block 150

Accounts block 30

Admin Block 20

I

i)

Suggest the most suitable block to house the server at Chennai block for best and effective connectivity.

	<p>Suggest the type of network for the new training institute and draw</p> <p>ii) the cable layout for the Chennai office</p> <p>Suggest a hardware/software that would provide the data security for entire network</p> <p>iii) region.</p> <p>Suggest a device that shall be needed to provide wireless internet access to all smar</p> <p>iv) phones/laptop users in Chennai office.</p> <p>Suggest the protocol used for video conferencing between Chennai</p> <p>v) office and Mumbai office</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>
32.	<p>(a) Write the output of the code given below:</p> <pre> val=4 def findval(m,n=10): val=0 val=val+m*n a=10 b=20 findval(a,b) print(val,end="-") findval(a) print(val,end="-") </pre> <p>The code given below inserts the following record in the table Employee:</p> <p>Empid – integer Name – string salary-float</p> <p>Note the following to establish connectivity between Python and MYSQL:</p> <p>Username is root</p> <p>Password is tiger</p> <p>The table exists in a MYSQL database named Empolyee.</p> <p>The details (Empid, Name, salary) are to be accepted from the user.</p> <p>Write the following missing statements to complete the code:</p> <p>Statement 1 – to form the cursor object</p> <p>Statement 2 – to execute the command that inserts the record in the table Employee.</p> <p>Statement 3- to add the record permanently in the database</p> <pre> import mysql.connector from mysql.connector import Error connection = mysql.connector.connect(host='localhost', database='Employee', user='root', password='tiger') </pre>	2+3

```

cursor=_____#STATEMENT1
empid=int(input("enter Empid"))
name=input("enter name")
salary=float(input("ENTER SALARY"))
result = _____#STATEMENT2
_____#STATEMENT3

```

OR

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

```
s="PREboardCS*2022!"
```

```
j=2
```

```
for i in s.split('*'):
```

```
    k = i [ : j ]
```

```
    if k.isupper():
```

```
        j=j+1
```

```
    elif k.isdigit():
```

```
        j=j+2
```

```
    else:
```

```
        j=j+3
```

```
print(s [ j : : j ] )
```

(b) The code given below reads the following record from the table named Employee and displays only those records who have Salary greater than 25000:

Note the following to establish connectivity between Python and MYSQL:

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

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 Employees who have salary greater than 25000.

Statement 3- to read the complete result of the query (records whose salary greater than 25000) into the object named records, from the table Employee in the database.

```
import mysql.connector
```

```
connection = mysql.connector.connect(host='localhost',
```

```
                                     database='Employee',
```

```
                                     user='root',
```

```
                                     password='tiger')
```

```
cursor=_____#STATEMENT1
```

```
_____#STATEMENT2
```

```
records = _____#STATEMENT3
```

```
for row in records:
```

```
    print("Empid",row[0],end=" ")
```

```
    print("name",row[1],end=" ")
```

	<pre>print("salary",row[2],end=" ") print()</pre>																																																	
33.	<p>What is a csv file?</p> <p>Write a Program in Python that defines and calls the following user defined functions:</p> <p>(i) INSERT() – To accept and add data of a student to a CSV file ‘student.csv’. Each record consists of a list with field elements as sid, name and marks to store student id, name and marks respectively.</p> <p>(ii) COUNTSTUDENTS() – To count the number of records present in the CSV file named ‘student.csv’.</p> <p style="text-align: center;">OR</p> <p>What is the purpose of delimiter?</p> <p>Write a Program in Python that defines and calls the following user defined functions:</p> <p>(i) add() – To accept and add data of a product to a CSV file ‘product.csv’. Each record consists of a list with elements as pid, pname and price to store product id, product name and price respectively.</p> <p>(ii) search()- To display the records of the products whose price is more than 5000.</p>	5																																																
	SECTION E																																																	
34.	<p>Rahul created following table TRAVEL to store the travel details</p> <table><tr><th>TNO</th><th>TNAME</th><th>TDATE</th><th>KM</th><th>VTTYPE</th><th>NOP</th></tr><tr><td>101</td><td>NANDA</td><td>25-11-2019</td><td>100</td><td>VOLVO BUS</td><td>32</td></tr><tr><td>103</td><td>SANAL</td><td>09-12-2019</td><td>210</td><td>ORDINARY BUS</td><td>45</td></tr><tr><td>105</td><td>RAMU</td><td>06-12-2019</td><td>300</td><td>VOLVO BUS</td><td>40</td></tr><tr><td>102</td><td>SOMU</td><td>25-12-2019</td><td>120</td><td>AC DELEX BUS</td><td>35</td></tr><tr><td>107</td><td>NEHA</td><td>05-11-2019</td><td>250</td><td>ORDINARY BUS</td><td>25</td></tr><tr><td>104</td><td>SNEHA</td><td>06-11-2019</td><td>300</td><td>VOLVO BUS</td><td>32</td></tr><tr><td>106</td><td>KIRAN</td><td>12-12-2019</td><td>125</td><td>VOLVO BUS</td><td>43</td></tr></table> <p>Based on the data given above answer the following questions:</p> <p>(i) Identify the most appropriate column, which can be considered as Primary key.</p> <p>(ii) If 3 columns are added and 1 rows are deleted from the table TRAVEL, what will be the new degree and cardinality of the above table?</p> <p>(iii) Write the statements to:</p> <p style="padding-left: 40px;">a. Insert the following record into the table</p>	TNO	TNAME	TDATE	KM	VTTYPE	NOP	101	NANDA	25-11-2019	100	VOLVO BUS	32	103	SANAL	09-12-2019	210	ORDINARY BUS	45	105	RAMU	06-12-2019	300	VOLVO BUS	40	102	SOMU	25-12-2019	120	AC DELEX BUS	35	107	NEHA	05-11-2019	250	ORDINARY BUS	25	104	SNEHA	06-11-2019	300	VOLVO BUS	32	106	KIRAN	12-12-2019	125	VOLVO BUS	43	1+1+2
TNO	TNAME	TDATE	KM	VTTYPE	NOP																																													
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107	NEHA	05-11-2019	250	ORDINARY BUS	25																																													
104	SNEHA	06-11-2019	300	VOLVO BUS	32																																													
106	KIRAN	12-12-2019	125	VOLVO BUS	43																																													

	110	BIMAL	28-11-2022	200	VOLVO BUS	40	
	<p>b. Increase KM travelled by 10 if the VTYPE is VOLVO.</p> <p>OR (Option for part iii only)</p> <p>(iii) Write the statements to:</p> <p>a. Delete the record of travel of traveler NANDA.</p> <p>b. Add a column MILEAGE in the table with data type as integer</p>						
35.	<p>Biplab is a Python programmer. He has written a code and created a binary file STUDENT.DAT which has structure (admission_number, Name, Percentage). He has written an incomplete function <i>countrec()</i> in Python that would read contents of the file "STUDENT.DAT" and display the details of those students whose percentage is above 75. Also display number of students scoring above 75%. As a Python expert, help him to complete the following code based on the requirement given above:</p> <pre>import _____ #statement1 def countrec(): _____ #Statement2 records=_____ #Statement3 count=0 for record in records: if(_____):#Statement4 count=count+1 print("ID",record[0]) print("NAME",record[1]) print("PERCENTAGE",record[2]) print("No of students with perentage above 75",count)</pre> <p>(i) Which module should be imported in the program? (Statement1)</p> <p>(ii) Write the correct statement required to open a file named STUDENT.DAT in binary mode (Statement2)</p> <p>(iii) Which statement should Biplab fill in Statement 3 to read the data from the binary file, STUDENT.DAT and in Statement 4 to check the percentage?</p> <p>OR</p> <p>Explain various functions used in writing rows in csv file.</p>						1 1 2