**SR GLOBAL SCHOOL**

**PRE BOARD EXAM-II 2022-2023**

**CLASS- XII**

**SUBJECT- COMPUTER SCIENCE**

**Time : 3 hrs M M: 70 Marks**

***General Instructions:***

* **This question paper contains five sections, Section A to E.**
* **All questions are compulsory.**
* **Section A has 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 Q34 against part c only.**
* **All programming questions are to be answered using Python Language only.**

**SECTION – A**

1. State True or False: “Keywords can be used as identifiers in Python.” **(1)**
2. Which of the following is an invalid identifier in Python?  **(1)**
   1. Roll No (b) Salary

(c) Account No (d) EmpID

1. Which of the following will delete key-value pair for key = “Red” from a dictionary D1? **(1)**
   1. delete D1(“Red”) (b) del.D1(“Red”)

(c) del D1[“Red”] (d) del D1

1. What will be the output of the following statement:  **(1)**

print(3-10\*\*2+99/11)

(a) –2.05 (b) –88.0

(c) –89 (d) 58

1. What will be the output of the following code? **(1)**

Str1= ‘My name is digital’ Str2=Str1[3:7]

strlen = len(Str2) print(strlen)

(a) 4 (b) 14

(c) 24 (d) 34

1. Which of the following functions is used to write data in the binary mode?  **(1)**

|  |  |  |  |
| --- | --- | --- | --- |
| (a) write | (b) | output |  |
| (c) dump  **7.** Fill in the blank: | (d) | send | **(1)** |

\_\_\_\_\_\_ keyword is used to display non-repeated values in MySQL.

* 1. Unique (b) Remove

(c) Distinct (d) All

1. Which of the following commands will change row(s) of the table from MySQL database? **(1)**
   1. REPLACE TABLE (b) CHANGE TABLE

(c) UPDATE (d) ALTER TABLE

1. Which of the following statement(s) would give an error after executing the following code? **(1)**

tup = (20,30,40,50,80,79)

print(tup) #Statement 1

print(tup[3]+50) #Statement 2

print(max(tup)) #Statement 3

tup[4]=80 #Statement 4

* 1. Statement 1 (b) Statement 2

(c) Statement 3 (d) Statement 4

1. Fill in the blank: **(1)**

\_\_\_\_\_\_\_\_\_ is a table constraint that will prevent the entry of duplicate rows.

* 1. Primary Key (b) NULL

(c) Unique (d) Distinct

1. Which of the following is the correct syntax of file object ‘fobj’ to write sequence data type using write lines () function? **(1)**
   1. file.writelines(sequence)
   2. fobj.writelines()
   3. fobj.writelines(sequence)
   4. fobj.writeline()
2. Fill in the blank: **(1)**

HAVING clause is used in combination with clause.

* 1. GROUP BY (b) Where (c) IN (d) Order By

1. The network that connects many organizations spread over one or more countries or continents is known as: **(1)**
   1. WWW (b) LAN (c) PAN (d) WAN
2. Which statement consists of a logical operator? **(1)**
   1. a+b\*\*c (b) a >b: (c) a and b not c (d) 2 in a
3. Which of the following function can work with NULL values in a database? **(1)**
   1. avg() (b) sum() (c) count(\*) (d) total(\*)
4. Which command is used for counting the number of rows in a database? **(1)**
   1. row (b) row count (c) count() (d) row\_count

# Q.- 17 and 18 are Assertion and Reason-based questions. Mark the correct choice:

1. Both A and R are true and R is the correct explanation for A
2. (ii) Both A and R are true and R is not the correct explanation for A
3. A is True but R is False
4. A is False but R is True
5. **Assertion (A):** Function can take input values as parameters, execute them and return output (if required) to the calling function with a return statement. **(1)**

**Reason (R):** A function in Python can return multiple values.

1. **Assertion (A):** Pickle in Python is primarily used in serializing and deserializing a Python object structure.

**Reason (R):** pickle.dump() method is used to write the object in file and pickle.load() method is used to read the object from pickled file. **(1)**

# SECTION – B

1. Shristi has written a Python program to add all the numbers of the list. Her code is having errors. Rewrite the correct code and underline the corrections made. **(2)**

define sum(numbers):

total = 0

for x in numbers

total += x returns total

print(sum([4, 6, 3, 5, 6]))

1. What is the use of Modem and Router in a network? **(2)**

**OR**

Write two points of difference between Star topology and Bus topology.

1. (a) Given is a Python string declaration: **(2)**

mySubject = "Computer Science with Python"

(i) Write the output of: print(mySubject[-27:-10:2])

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

>>>a=[10,20,30,40,50,60,70]

>>> a[3:5]=[100,1000]

>>> a[3:5]=[10000]

>>> print(a)

1. What is the difference between ‘Primary Key’ and ‘Foreign Key’? Can a table have multiple Primary keys or Foreign keys? **(2)**
2. (a) What is the use of VoIP? **(1)**

(b) Write the full form of: (i) POP (ii) XML **(1)**

1. Write the output of the given code: **(2)**

def Display(l):

L2=[]

for n in l:

if n % 2 == 0:

l2.append (n)

return l2

print(Display([100, 228, 333, 432, 509, 60, 787, 800, 967]))

**OR**

Predict the output of the Python code given below:

t1=(10,20,"book",30,9.5,"item",[12,13],(3,4),30,5,30)

print(t1.index(20))

print( t1.index(30)) print(t1.count(30))

print(t1[–8:–4])

1. Write any two aggregate functions in SQL with an appropriate example. **(2)**

**OR**

Write two commands each of DDL and DML commands in SQL.

# SECTION – C

1. (a) Consider the following tables – CARDEN and CUSTOMER: **(1+2)**

**Table:** CARDEN **Table:** CUSTOMER

|  |  |  |
| --- | --- | --- |
| **Code** | **CarName** | **Charges** |
| 501 | A-Star | 18 |
| 503 | Indigo | 16 |
| 502 | Innova | 15 |
| 509 | SX4 | 14 |

|  |  |
| --- | --- |
| **Code** | **CarName** |
| 1001 | Hemant Sahu |
| 1002 | Raj Lal |
| 1003 | Feroza Shah |
| 1004 | Ketan Dhar |

What will be the output of the following statement?

SELECT \* FROM CARDEN, CUSTOMER;

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

**Table:** STOCK

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ItemNo** | **Item** | **Dcode** | **Qty** | **UnitPrice** | **StockDate** |
| 5005 | Ball Pen 0.5 | 102 | 100 | 16 | 2010-03-31 |
| 5003 | Ball Pen 0.25 | 102 | 150 | 20 | 2010-01-01 |
| 5002 | Gel Pen Premium | 101 | 125 | 14 | 2010-02-14 |
| 5006 | Gel Pen Classic | 101 | 200 | 22 | 2009-01-01 |
| 5001 | Eraser Small | 102 | 210 | 5 | 2009-03-19 |
| 5004 | Eraser Big | 102 | 60 | 10 | 2009-12-12 |
| 5009 | Sharpener Classic | 103 | 160 | 8 | 2009-01-23 |

**Table:** DEALERS

|  |  |
| --- | --- |
| **Dcode** | **DName** |
| 101 | Reliable Stationers |
| 103 | Classic Plastics |
| 102 | Clear Deals |

1. SELECT Dcode, MAX(UnitPrice) FROM STOCK GROUP BY Dcode;
2. SELECT COUNT (DISTINCT Dcode) FROM STOCK;
3. SELECT Qty \* UnitPrice FROM STOCK WHERE ItemNo=5006;
4. SELECT MIN (StockDate) FROM STOCK;
5. Write a user-defined function Count\_H\_T() in Python that displays the number of lines starting with ‘H’ and ‘T’ in the file **“Poem.txt”**. Example, if the file contains: **(3)**

**Here we go round the mulberry bush, The mulberry bush,**

**The mulberry bush.**

**Here we go round the mulberry bush On a cold and frosty morning.**

The line count should be 4.

**OR**

Write a function Replace\_Space() in Python which should read each character of a text file “MYFILE.TXT” and then replace all spaces from text with dash (-).

**Example:**

If the file content is as follows:

The relative paths are relative to current working directory. The **Replace\_Space() function** should display the output as:

**The-relative-paths-are-relative-to-current-working-directory.**

1. (a) Write the outputs of the SQL queries (i) to (iv) based on the relations MOBILEMASTER & MOBILESTOCK given below: **(3)**

**Table:** MOBILEMASTER

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **M\_Id** | **M\_Company** | **M\_Name** | **M\_Price** | **M\_Mf\_Date** |
| MB001 | Samsung | Galaxy | 4500 | 2013-02-12 |
| MB003 | Nokia | N1100 | 2250 | 2011-04-15 |
| MB004 | Micromax | Unite3 | 4500 | 2016-10-17 |
| MB005 | Sony | XperiaM | 7500 | 2017-11-20 |
| MB006 | Oppo | SelfieEx | 8500 | 2010-08-21 |

**Table:** MOBILESTOCK

|  |  |  |  |
| --- | --- | --- | --- |
| **S\_Id** | **M\_Id** | **M\_Qty** | **M\_Supplier** |
| S001 | MB004 | 450 | New Vision |
| S002 | MB003 | 250 | Praveen Gallery |
| S003 | MB001 | 300 | Classic Mobile Store |
| S004 | MB006 | 150 | A-one Mobiles |
| S005 | MB003 | 150 | The Mobile |
| S006 | MB006 | 50 | Mobile Centre |

1. SELECT M\_Company, M\_Name, M\_Price,M\_Qty FROM MOBILEMASTER MM, MOBILESTOCK MS, WHERE MM.M\_ID= MS.M\_ID;
2. SELECT MAX(M\_Price) FROM MOBILEMASTER WHERE M\_Name LIKE "S%";
3. SELECT M\_Supplier, M\_Qty FROM MOBILESTOCK WHERE M\_Id ="MB003";
4. SELECT M\_Company FROM MOBILEMASTER WHERE M\_Price BETWEEN 3000 AND 5000;
   1. Write a command to open an existing database ‘Stock’.
5. Write the definition of a method COUNTNOW(PLACES) to find and display those place names in which there are more than five characters after storing the name of places in a dictionary. **(3)**

***For example***, if the dictionary PLACES contains:

**{'1': "DELHI", '2': "LONDON", '3': "PARIS", '4': "NEW YORK", '5': "DUBAI"}**

The following output should be displayed:

**LONDON NEW YORK**

1. A list contains the following record of a Hostel: [Hostel\_No, Total\_Students, Total Rooms]  **(3)**

Write the following user defined functions to perform given operations on the stack named ‘Hostel’:

1. Push\_element() - To push an object containing Hostel\_No and Total Students along with Total Rooms

to the stack

1. 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 Hostel details are: [1,2000,1000]

[2, 1500,800]

[3,5000,2000]

The output should be:

[1,2000,1000]

[2, 1500,800]

[3,5000,2000]

Stack Empty

**OR**

Write a program to implement a Stack for book\_details (book name : book price) where book name is a key and book price is value. Write a function in Python, Push(book\_details) where book\_details is a dictionary containing the details of books– {book\_name : book\_price}. The function should push the names of those books in the stack which have price greater than 500. Also display the count of books pushed into the stack. *For example:* If the dictionary contains the following data:

**books={" Python":560, "Java":450, "MySQL":330, "Web Development":725 }**

The stack should contain Python and Web Development. The output should be: **The count of books in the stack is 2.**

# SECTION – D

1. Sony has set up its Branch at Srinagar for its office and web-based activities. It has four zones of buildings as shown in the diagram: **(5)**



**Zone**

**Z**

**Zone**

**Y**

**Zone**

**X**

**Zone**

**U**

# Branch-to-branch distance is:

|  |  |
| --- | --- |
| Zone X to Zone Z | 40 m |
| Zone Z to Zone Y | 60 m |
| Zone Y to Zone X | 135 m |
| Zone Y to Zone U | 70 m |
| Zone X to Zone U | 165 m |
| Zone Z to Zone U | 80 m |

**Number of Computers:**

|  |  |
| --- | --- |
| Zone X | 50 |
| Zone Z | 130 |
| Zone Y | 40 |
| Zone U | 15 |

* 1. Suggest the most suitable cable layout or Networking Topology of connections between the zones.
  2. Suggest the most suitable place (*i.e.*, Zone) to house the Server of this organization. Give a suitable reason with justification.
  3. Suggest the placement of the following devices with justification:
     1. Repeater (ii) Hub/Switch
  4. Which is the most economic type of cable for the selected topology?
  5. Suggest a device/software to be installed in each branch to take care of data security.

1. (a) Write the output of the code given below: **(2+3)**

Val = 100

def display(N): global Val Val = 100 if N%2==0:

Val = Val \*\* N else:

Val = Val \* N print(Val, end="$") display(2)

print(Val)

1. The code given below inserts the following record in the table Fun\_City: Ticket\_Id – integer

Name – string Ticket\_Price – integer No\_Of\_Tickets – integer Total\_Amount – integer

Note the following to establish connectivity between Python and MySQL:

* + Username is root
  + Password is Ticket
  + The table exists in a MySQL database named Amusement.
  + The details (Ticket\_Id, Name, Ticket\_Price, No\_of\_Tickets) are to be accepted by the user. Write the following missing statements to complete the code:

Statement 1 – To form the cursor object

Statement 2 – Write a command to execute the query

Statement 3 – Write a command to save data permanently in the database.

import mysql.connector as mysql def sql\_data():

con=mysql.connect(host="localhost",user="root", password="Ticket", database="Amusement")

mycursor= #Statement 1

Ticket\_No=int(input("Enter Ticket Number :: ")) Name=input("Enter Name :: ")

Ticket\_Price= input("Enter Ticket Price :: ") No\_Of\_Tickets=int(input("Enter No of tickets :: "))

Total\_Amount= Ticket\_Price \* No\_Of\_Tickets

query="Insert into Fun\_City values({},'{}',{},{})".format(Ticket\_No, Name, Ticket\_Price, No\_Of\_Tickets, Total\_Amount)

#Statement 2

#Statement 3 print("Data Added successfully")

**OR**

1. Predict the output of the code given below:

def Change(s):

k =len(s)

m=" "

for i in range(0,k): if(s[i].isupper()):

m=m+s[i].lower()

elif s[i].isalpha():

m=m+s[i].upper() else:

m=m+'$' print(m)

Change('IPv6 128-bit')

1. The code given below reads the following record from the table named Employee and displays only those records who have a Salary greater than 75000:
   * EmpNo – integer
   * EmpName – string
   * Designation – string
   * Salary – integer

Note the following to establish connectivity between Python and MySQL:

* + Username is root
  + Password is sales\_emp
  + The table exists in a MySQL database named “Office”. 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 whose salaries are greater than 75000.
  + Statement 3 – To read the complete result of the query (records whose salaries are greater than 75000) into the object named data from the table employee in the database.

import mysql.connector as mysql def SQL\_Office():

con=mysql.connect(host="localhost",user="root", password="sales\_emp", database="Office")

mycursor= #Statement 1

print("Employees with salaries greater than 75000 are : ")

#Statement 2

data= #Statement 3

for i in data: print(i)

print()

1. What is the function of csv.writer() function? **(5)**

Write a program in Python that defines and calls the following user-defined functions:

1. AddRecord() – To accept and add data of Mobile phones to a CSV file ‘Mobile\_Phones.csv’. Each record consists of a list with field elements as ModelNo, MobileName, Manufacturer and Price to store model number, mobile name, manufacturer and price respectively.
2. Find() – To search the records of mobiles manufactured by Apple present in the CSV file named ‘Mobile\_Phones.csv’.

**OR**

What is the benefit of using “with open()” method over “open()” method while opening a file? Write a program in Python that defines and calls the following user-defined functions:

1. Add\_Item() – To accept and add data of stationery items to a CSV file ‘Stationery.csv’. Each record

consists of a list with field elements as Item\_Id, Item\_name and Item\_price to store item id, item\_name and item\_price.

1. Count() – To count the total number of stationery items in the CSV file.

# SECTION – E

1. Krishna, working as a computer professional in a hospital, creates a table OPD to store records of patients registered in the OPD section. A sample of the records is given below: (1+1+2)

**Table:** OPD

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Reg No** | **Name** | **Age** | **Department** | **Dateof\_Reg** | **Charges** | **Gender** | **Room No** |
| R0123 | Anurag | 62 | Gen. Physician | 2022-01-21 | 500 | M | 10 |
| R0124 | Abhay | 22 | ENT | 2022-10-12 | 300 | M | 15 |
| R0125 | Zaid | 32 | Orthopaedic | 2022-02-19 | 500 | M | 11 |
| R0126 | Karan | 12 | Paediatrician | 2022-07-11 | 500 | M | 12 |
| R0127 | Rajni | 30 | ENT | 2022-01-12 | 300 | F | 15 |
| R0128 | Nishi | 16 | ENT | 2022-09-24 | 300 | F | 15 |
| R0129 | Ankita | 29 | Cardiology | 2022-02-20 | 800 | F | 20 |

Based on the data given above, answer the following questions:

1. If the table “OPD” is to be linked with another table “Registration” in the same database named “Hospital”, then identify the most appropriate column which can be used as a Foreign key in the “Registration” table.
2. What is the cardinality and degree of the given table?
3. Write the statements to:
   1. Insert the following record into the table: RegNo–R130, Name–Naman, Age–30, Department– ENT, Dateof\_Reg–2022-10-10, Charges–700, Gender–M.
   2. Increase the OPD Charges of the ENT department by ` 200.

**OR**

(Option for part iii only)

1. Write the statements to:
   1. Delete the column RoomNo from the table OPD.
   2. Add a new column Panel\_Discount in the table with datatype as Varchar with 50 characters.
2. Vedansh is a Python programmer working in a school. For the Annual Sports Event, he has created a binary file ‘Result.dat’ with Student\_Id, St\_Name, Game\_Name and Result to store the results of students in different sports events. After the event has been completed, he now wants to display the records of those students who won the game, which is inserted in the Result field with ‘Won’ and ‘Loss’ data. As a Python expert, help him complete the following code based on the requirement given above: **(1+1+1+1)**

import #Statement1

rec=[]

while True:

Student\_Id=int(input(("Enter Student Id:"))) St\_name=input("Enter name:") Game\_Name=input("Enter Salary:")

Result= input(“Enter Result:”) data=[Student\_Id, St\_Name, Game\_Name,Result] rec.append(data)

Choice=input("Wish to enter more records: Y/N") if Choice.upper()=='N':

break

f1= #Statement2 pickle.dump(rec,f1)

print("Record added:")

fout=open("Result.dat",'rb')

res= #Statement 3

count=0

for i in res:

if : #Statement 4 st\_id=i[0]

st\_name=i[1] game=i[2] result=i[3] count+=1

print(st\_id,st\_name,game,result) print("Total students are", count)

fout.close()

1. Write a statement to import the module. (Statement 1)
2. Write a statement to open a binary file in write mode. (Statement 2)
3. Write the correct statement required to load the file. (Statement 3)
4. Write a statement to check if result field contains ‘Won’ or ‘won’. (Statement4)