DOON GLOBAL SCHOOL

PREBOARD EXAMINATION -II (2023-24)

CLASS - XII

SUBJECT- COMPUTER SCIENCE (083)

TIME – 3Hrs M. MARKS: -70

INSTRUCTIONS:

The paper is divided into 4 Sections- A, B, C, D and E.
Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
All programming questions are to be answered using Python Language only.

SECTION A

1. State True or False:
   "In a Python program, if a break statement is given in a nested loop, it terminates the execution of all loops in one go."
2. The statement that helps to terminate the loop is called____.
   a) Continue b) break c) exit d) pass
3. Which of the following options will not result in an error when performed on tuples in Python where tupl=(5,2,7,0,3)?
   a) tupl[1]=2 b) tupl.append(2) c) tupl1=tupl+tupl d)tupl.sort()
4. What is the value returned by find() function for an unsuccessful search of sequence in the given string?
   a) Error b)False c) 0 d)-1
5. Choose the appropriate statement to change the "year" value from 2000 to 2015.
   car = { "brand": "Maruti Suzuki","model": "Dzire", "year": 2000 }
   a) car["year"] = 2015 b)car.year = 2015 c)car.year[2015] d)year = 2015
6. Riya wants to transfer pictures from her mobile phone to her laptop. She uses Bluetooth Technology to connect two devices. Which type of network will be formed in this case?
   a) PAN b)LAN c)MAN d)WAN
7. The___method returns the file object's current position.
   a) seek(curr) b) tell() c)loc() d)curr()
8. By using an aggregate function, the__clause filters the results of the GROUP BY clause.
   a) HAVING b)ORDER BY c)DISTINCT d)GROUP BY
9. Which of the following statement(s) would give an error during execution of the following code?

```
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
```

   a)Statement 1 b)Statement 2 c)Statement 3 d)Statement 4
10. What will happen when you run the following MySQL statement?
    SELECT e.emp_id, e.fname, e.lname, d.name FROM employee e INNER JOIN department d ON e.dept_id=e.dept_id; a) Error b)No Error
11. In an environment with many high-voltage devices, the best transmission medium would be _____.
    a) Twisted-pair cable b) Coaxial cable c) Optical fiber d)None of these
12. Consider the code given below:

```
b=100
def test(a):
    _____          # missing statement
    b=b+a
    print(a,b)
test(10)
print(b)
```

13. Which of the following statements should be given in the blank for #Missing Statement, if the output produced is 110?

a) global a b) global b=100 c)global b c)global a=100

14. Which of the following statements is FALSE about keys in a relational database?

a) Any candidate key is eligible to become a primary key.
b) A primary key uniquely identifies the tuples in a relation.
c) A candidate key that is not a primary key is a foreign key.
d) A foreign key is an attribute whose value is derived from the primary key of another relation.

15. Fill in the blank:

In case of_____switching, before a communication starts, a dedicated path is identified between the sender and the receiver.

16. Which of the following functions changes the position of file pointer and returns its new position?

a.flush() b.tell() c.seek() d.offset()

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 , but 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): The scope refers to different parts of the function and program within which a variable or value is legal and accessible.

Reason (R): Global is a keyword to create global variable.

18. Assertion (A): The pickling module consist of two main functions. load() is used during the pickling process, whereas dump() is used during unpickling process.

Reason (R): You can use load() and dump() function by adding pickle module. You can use"import pickle" statement to include the pickle module in your program.

SECTION B

19. i) Expand the following terms: POP3 , URL.

ii) Give one difference between XML and HTML.

OR

i)Define the term bandwidth with respect to networks.

ii) How is http different from https?

20. The code given below accepts a number as an argument and returns the reverse number. Observe the following code carefully and rewrite it after removing all syntax and logical errors. Underline all the corrections made.

```
define revNumber (num):
    rev = 0
    rem = 0
    While num > 0:
        rem ==num %10
        rev= rev*10 + rem
        num =num//10
        return rev
print (rev(1234))
```

21. Write a function, lenWords(STRING), that takes a string as an argument and returns a tuple containing length of each word of a string.

For example, if the string is "Come let us have some fun", the tuple will have (4, 3, 2, 4, 4, 3)

OR

Write a function countNow(PLACES) in Python, that takes the dictionary, PLACES as an argument and displays the names (in uppercase)of the places whose names are longer than 5 characters. For example, Consider the following dictionary PLACES={1:"Delhi",2:"London",3:"Paris",4:"New York",5:"Doha"}

The output should be: LONDON NEW YORK

22. Predict the output of the following code:

```
S = "LOST"
L = [10,21,33,4]
D= {}
for I in range (len (S)) :
    if I%2==0:
        D[L.pop()] =S[I]
    else:
        D[L.pop()] = 1+3
```

```
for K,V in D.items():
    print (K, V, sep="*")
```

23. Write the Python statement for each of the following tasks using BUILT-IN functions/methods only:
To insert an element 200 at the third position, in the list L1.
To check whether a string named, message ends with a full stop / period or not.

OR

A list named studentAge stores age of students of a class. Write the Python command to import the required module and (using built-in function) to display the most common age value from the given list.

24. Ms. Shalini has just created a table named "Employee" containing columns Ename, Department and Salary. After creating the table, she realized that she has forgotten to add a primary key column in the table. Help her in writing an SQL command to add a primary key column EmpId of integer type to the table Employee. Thereafter, write the command to insert the following record in the table:
EmpId- 999
Ename- Shweta Department: Production Salary: 26900

OR

Zack is working in a database named SPORT, in which he has created a table named "Sports" containing columns SportId, SportName, no_of_players, and category.
After creating the table, he realized that the attribute, category has to be deleted from the table and a new attribute TypeSport of data type string has to be added. This attribute TypeSport cannot be left blank. Help Zack write the commands to complete both the tasks.

25. Predict the output of the following code:

```
def Convert(Old):
    l=len(Old)
    New=""
    for i in range(0,l):
        if Old[i].isupper():
            New=New+Old[i].lower()
        elif Old[i].islower():
            New=New+Old[i].upper()
        elif Old[i].isdigit():
            New=New+"*"
        else:
            New=New+"%"
    return New
Older = "InDIa@2020"
Newer=Convert(Older)
print("New string is: ",Newer)
```

SECTION – C

26.

Sample table: foods

ITEM_ID	ITEM_NAME	ITEM_UNIT	COMPANY_ID
1	Chex Mix	Pcs	16
6	Cheez-It	Pcs	15
2	BN Biscuit	Pcs	15
3	Mighty Munch	Pcs	17
4	Pot Rice	Pcs	15
5	Jaffa Cakes	Pcs	18
7	Salt n Shake	Pcs	

Sample table: company

COMPANY_ID	COMPANY_NAME	COMPANY_CITY
18	Order All	Boston
15	Jack Hill Ltd	London
16	Akas Foods	Delhi
17	Foodies.	London
19	sip-n-Bite.	New York

a) What will be the output of the following statement? SELECT * FROM foods NATURAL JOIN company;

b) Twinkle is using a table EMPLOYEE. It has the following columns:
Code, Name, Salary, Dept code. She wants to display maximum salary Department wise. She wrote the following command:
SELECT Dept code, Max(Salary) FROM EMPLOYEE:
But she did not get the desired result.
Rewrite the above query with necessary change to help her get the desired output.

b) What is the purpose of virtual table?

27. Write a program in Python to check whether a dictionary contains unique keys and values . Examples:
D={1:45,2:45,3:50,4:30}
Values are not unique.

28. Write a function COUNT() in Python to read contents from file "REPEATED.TXT", tocount and display the occurrence of the word "Catholic" or "mother".

For example:
If the content of the file is “Nory was a Catholic because her mother was a Catholic, and Nory‟s mother was a Catholic because her father was a Catholic , and her father was a Catholic because his mother was a Catholic , or had been The function should display:
Count of Catholic, mother is 9

OR

Write a function AMCount() in Python, which should read each character of a text file STORY.TXT, should count and display the occurance of alphabets A and M (including small cases a and m too).
Example:
If the file content is as follows:
Updated information
As simplified by official websites.
The EUCount() function should display the output as:
A or a:4
M or m :2

29. Write the output of SQL queries a to d based on the table VACCINATION_DATA given below:

VID	Name	Age	Dose1	Dose2	City
101	Jenny	27	2021-12-25	2022-01-31	Delhi
102	Harjot	55	2021-07-14	2021-10-14	Mumbai
103	Srikanth	43	2021-04-18	2021-07-20	Delhi
104	Gazala	75	2021-07-31	NULL	Kolkata
105	Shiksha	32	2022-01-01	NULL	Mumbai

a) SELECT Name, Age from VACCINATION_DATA WHERE Dose2 IS NOT NULL AND Age>40;
b) SELECT City, COUNT (*) from VACCINATION_DATA GROUP BY City;
c) SELECT DISTINCT City from VACCINATION_DATA;

30. A list, NList contains following record as list elements:
[City, Country, distance from Delhi]
Each of these records are nested together to form a nested list. Write the following user defined functions in Python to perform the specified operations on the stack named travel.
Push_element(NList): It takes the nested list as an argument and pushes a list object containing name of the city and country, which are not in India and distance is less than 3500 km from Delhi.
Pop_element(): It pops the objects from the stack and displays them. Also, the function should display “Stack Empty” when there are no elements in the stack.
For example: If the nested list contains the following data:
NList=[["New York", "U.S.A.", 11734],
["Naypyidaw", "Myanmar", 3219],
["Dubai", "UAE", 2194],
["London", "England", 6693],
["Gangtok", "India", 1580],
["Columbo", "Sri Lanka", 3405]]
The stack should contain:
['Naypyidaw', 'Myanmar'],
['Dubai', 'UAE'],
['Columbo', 'Sri Lanka'] The output should be: ['Columbo', 'Sri Lanka']
['Dubai', 'UAE']
['Naypyidaw', 'Myanmar'] Stack Empty

SECTION – D

31. Consider the tables PRODUCT and BRAND given below:

Table: PRODUCT

PCode	PName	UPrice	Rating	BID
P01	Shampoo	120	6	M03
P02	Toothpaste	54	8	M02
P03	Soap	25	7	M03
P04	Toothpaste	65	4	M04
P05	Soap	38	5	M05
P06	Shampoo	245	6	M05

Table: BRAND

BID	BName
M02	Dant Kanti
M03	Medimix
M04	Pepsodent
M05	Dove

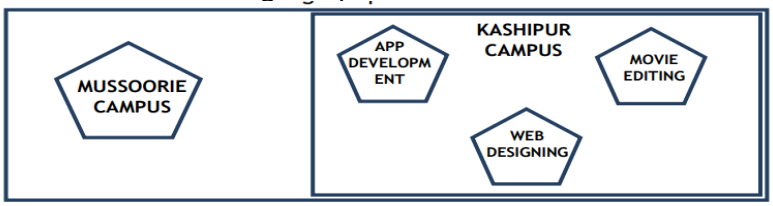
Write SQL queries for the following:

a) Display product name and brand name from the tables PRODUCT and BRAND.
b) Display the structure of the table PRODUCT.
c) Display the average rating of Medimix and Dove brands
d) Display the name, price, and rating of products in descending order of rating.

32. Vedansh is a Python programmer working in a school. For the Annual Sports Event, he has created a csv file named Result.csv, to store the results of students in different sports events. The structure of Result.csv is :
[St_Id, St_Name, Game_Name, Result]
Where
St_Id is Student ID (integer)
ST_name is Student Name (string)
Game_Name is name of game in which student is participating(string) Result is result of the game whose value can be either 'Won', 'Lost' or 'Tie'
For efficiently maintaining data of the event, Vedansh wants to write the following user defined functions:
Accept() – to accept a record from the user and add it to the file Result.csv. The column headings should also be added on top of the csv file.
wonCount() – to count the number of students who have won any event. As a Python expert, help him complete the task.

SECTION – E

33. MakeInIndia Corporation, an Uttarakhand based IT training company, is planning to set up training centres in Various cities in next 2 years. Their first campus is coming up in Kashipur district. At Kashipur campus, they are planning to have 3 different blocks for App development, Web designing and Movie editing. Each block has number of computers, which are required to be connected in a network for communication, data and resource sharing. As a network consultant of this company, you have to suggest the best network related solutions for them for issues/problems raised in question nos. (i) to (v), keeping in mind the distances between various blocks/locations and other given parameters.



Distance between various blocks/locations:

Block	Distance
App development to Web designing	28 m
App development to Movie editing	55 m
Web designing to Movie editing	32 m
Kashipur Campus to Mussoorie Campus	232 km

Number of computers

Block	Number of Computers
App development	75
Web designing	50
Movie editing	80

(i) Suggest the most appropriate block/location to house the SERVER in the Kashipur campus (out of the 3 blocks) to get the best and effective connectivity. Justify your answer.
(ii) Suggest a device/software to be installed in the Kashipur Campus to take care of data security.
(iii) Suggest the best wired medium and draw the cable layout (Block to Block) to economically connect various blocks within the Kashipur Campus.
(iv) Suggest the placement of the following devices with appropriate reasons:
a. Switch / Hub **b.** Repeater
(v) Suggest a protocol that shall be needed to provide Video Conferencing solution between Kashipur Campus and Mussoorie Campus.

34. Differentiate between r+ and w+ file modes in Python.
Consider a file, SPORT.DAT, containing records of the following structure:
[SportName, TeamName, No_Players]
Write a function, copyData(), that reads contents from the file SPORT.DAT and copies the records with Sport name as “Basket Ball” to the file named BASKET.DAT. The function should return the total number of records copied to the file BASKET.DAT.

OR

i) How are text files different from binary files?
ii) A Binary file, CINEMA.DAT has the following structure:
{MNO:[MNAME, MTYPE]}

Where
MNO – Movie Number
MNAME – Movie Name
MTYPE is Movie Type
Write a user defined function, findType(mtype), that accepts mtype as parameter and displays all the records from the binary file CINEMA.DAT, that have the value of Movie Type as mtype.

35. i) Define the term Domain with respect to RDBMS. Give one example to support your answer.
ii) 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 tiger
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 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="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="insert into student
values({},'{}',{},{})".format(rno,name,clas,marks)
--------------------#Statement 2
--------------------# Statement 3
 print("Data Added successfully")
```

OR

i) Give one difference between alternate key and candidate key.
ii) Sartaj has created a table named Student in MYSQL database,
SCHOOL:
rno(Roll number)- integer
name(Name) - string
DOB (Date of birth) – Date
Fee – float
Note the following to establish connectivity between Python and MySQL:
Username - root
Password - tiger
Host – localhost
Sartaj, now wants to display the records of students whose fee is more than 5000. Help Sartaj to write the program in Python.

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