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BENGALURU REGION
FIRST PRE-BOARD EXAM (2022-23)

Class : XII   MAX MARKS: 70
Sub: COMPUTER SCIENCE (083)   TIME: 3 HOURS

General Instructions:
1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 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 Q34 against part c only.
8. All programming questions are to be answered using Python Language only.

	Section A	
1.	(a) Which of the following is not a relational operator? a) > b) <= c) != d) =	1
2.	Suppose str="987654321". What will be the output of: print(type(str)) (a) <class int> (b) <class bool> (c) <class string> (d)<class str>	1
3.	Which keyword is used to eliminate duplicate values in an SQL select query? a) UNIQUE b) DISTINCT c) ALTER d) MODIFY	1
4.	The Internet is an example of: a) MAN b) LAN c) WAN d) All of the above	1
5.	Choose the correct output from the given options for the following code: data = [10,20,23,20,24,10,12,10] print(data.index(10,3) + data.index(20)) a) 1 b) 6 c) 2 d) 8	1
6.	If all devices are connected to a central hub, then the topology is called: a) Ring topology b) bus topology c) star topology d) mesh topology	1
7.	With SQL, how do you select all the records from a table named "Persons" where the value of the column "FirstName" ends with an "a"?	1

	a) SELECT * FROM Persons WHERE FirstName="a"; b) SELECT * FROM Persons WHERE FirstName LIKE "a%"; c) SELECT * FROM Persons WHERE FirstName LIKE "%a"; d) SELECT * FROM Persons WHERE FirstName="%a%";	
8.	Which of the following is a DDL command? a) UPDATE b) TRUNCATE c) ALTER d) INSERT	1
9.	Which of the following is not a type of token in Python? a) keywords b) literals c) operators d) class	1
10.	How many values can be returned by a function in python? a) only 2 b) only 1 c) 1 or more d) functions return no value	1
11.	Write the name of module that needs to be imported to execute the function dump(): a) random b) csv c) mysql.connector d) pickle	1
12.	Which of the following command of SQL is used to change the records that already exist in a table? a) INSERT b) UNION c) UPDATE d) SELECT	1
13.	Give the output: my_data = (1, 2, "Kevin", "e") print (my_data[-2][-2]) a) 8.9 b) "Kevin". c) "e" d) "i"	1
14.	Suppose list1 is [1, 3, 2], What is list 1 * 2 ? a) [2, 6, 4] b) [1, 3, 2] c) [1, 3, 2, 1, 3, 2] d) [1, 3, 2, 3, 2, 1]	1
15.	The readline() method returns: a) a string b) a list of lines c) a list of single characters d) a list of one line	1
16	Evaluate the following expression: 8<5 or not 19<=20 and 11<4 a) True b) False c) None d) Null	1
17	**Assertion(A):** Python overwrites an existing file or creates a non-existing file when we open a file with 'w' mode. **Reason(R):** a+ mode is used only for write operations. a) Both A and R are correct and R correctly explains A. b) A is correct but R is wrong. c) A is wrong and R is correct. d) Both are incorrect.	1
18	**Assertion (A):** A CSV file is a special type of text file. **Reason (R):** All data in a CSV file are separated by a separator character. a) Both A and R are correct and R correctly explains A.	1

	b) A is correct but R is wrong. c) A is wrong and R is correct. d) Both are incorrect.	
	Section B **[14 marks] [2x7=14] Answer All questions**	

19	Sona has written the following code to check whether number is divisible by 3. She is unable to run the code successfully. Rewrite the code and underline each correction done in the code.
	
	        x=10
	        for i range in (x):
	           if i%3=0:
	             Print(i)
	         else
	            pass
		2

20	Expand the following acronyms: a) POP3 b) TCP c) WWW d) HTTPS	2
21	Write two disadvantages of star topology. **Or** What is a router? How does it differ from a gateway?	2
22	What will be the output of the following code? a=[1,2,3,4] x = a[len(a)-1] for i in range(3,0,-1): a[i]=a[i-1] a[0]=x print(a)	2
23	Differentiate between ALTER and UPDATE commands in SQL, with examples.	2

24	Write output for the following code.
	def encrypt(str):
	    str1=""
	    for i in str:
	        if i.isupper():
	            str1+=i.lower()
	        else:
	            str1+="*"
	    return str1
	s=encrypt("HeLLo")
	print(s)
	
	                OR
		2

	Go through the python code shown below and find out the possible output(s) from the suggested options i to iv. Also specify maximum and minimum value that can be assigned to the variable j. import random i=random.random() j=random.randint(0,6) print(int(i),":",j+int(i)) (i)0:0 (ii)0:6 (iii)1:7 (iv)1:6	

25	In the table Garment below
	   (a) Identify the candidate key(s) from the table Garment.
	   (b) What is the cardinality and degree of the table?
	
	Table: GARMENT
	
		GCODE	GNAME	SIZE	COLOUR	PRICE

---	---	---	---	---
111	Tshirt	XL	Red	1400.00
112	Jeans	L	Blue	1600.00
113	Skirt	M	Black	1100.00
114	Jacket	XL	Blue	4000.00
115	Trousers	L	Brown	1500.00
116	LadiesTop	L	Pink	1200.00		2
Section C	

	Section C	
26	Vedika has created a dictionary containing names and marks as key-value pairs of 5 students. Write a program, with separate user-defined functions to perform the following operations: 1. Push the keys (name of the student) of the dictionary into a stack, where the corresponding value (marks) is greater than 70. 2. Pop and display the content of the stack. For example, if the dictionary is as follows: d={"Ramesh":58, "Umesh":78, "Vishal":90, "Khushi":60, "Ishika":95}, then the output will be: Umesh Vishal Ishika	3
27.	A department is considering maintaining their worker data using SQL to store the data. As a database administrator, Karan has decided that :	3

Name of the database - Department
Name of the table - WORKER

The attributes of WORKER are as follows:
WORKER_ID - character of size 3
FIRST_NAME – character of size 10
LAST_NAME– character of size 10
SALARY - numeric
JOINING_DATE – Date
DEPARTMENT – character of size 10

1. Identify the attribute best suitable to be declared as a primary key.
2. Karan wants to increase the size of the FIRST_NAME column from 10 to 20
    characters. Write an appropriate query to change the size.
3. Karan wants to remove all the data from table WORKER from the database Department. Which command will he use from the following:

    i) DELETE FROM WORKER;
    ii) DROP TABLE WORKER;
    iii) DROP DATABASE Department;
    iv) DELETE * FROM WORKER;

28.	Write a function SUMNOS(L) that accepts a list L of numbers and finds separately the sum of all even numbers and the sum of all odd numbers from the list. For example, if L=[1,2,3,4], then the Output will be: sum of even numbers:6 Sum of odd numbers:4	3
29.	Write SQL commands for(a) to (b) and write the outputs for (C) on the basis of table GRADUATE	2+1

TABLE : GRADUATE

S No	NAME	Stipend	Subject	Average	Div
1	Karan	400	Physics	68	1
2	Divakar	450	Computers	68	1
3	Divya	300	Chemistry	62	2
4	Arun	350	Physics	63	1
5	Sabina	500	Mathematics	70	1
6	John	400	Chemistry	55	2
7	Robert	250	Physics	64	1
8	Rubina	450	Mathematics	68	1
9	Vikas	500	Computers	62	1
10	Mohan	300	Mathematics	57	2

a) List the names of those students who obtained DIV 1 arranged as per ascending order of NAME .
b) Display NAME , STIPEND , SUBJECT and amount of stipend received

	in a year assuming the specified STIPEND is paid every month. C.) Give the output of the following SQL statements based on table GRADUATE : (i) Select MIN(AVERAGE) from GRADUATE where SUBJECT="PHYSICS"; (ii)Select SUM(STIPEND) from GRADUATE where DIV=1;	
30	Write a function countmy() in Python to read the text file "DATA.TXT" and count the number of times "my" occurs in the file. For example, if the file "DATA.TXT" contains: "This is my website. I have displayed my preferences in the CHOICE section." then the countmy() function should display the output as: "my occurs 2 times" **Or** Write a method/function DISPLAYWORDS() in python to read lines from a text file STORY.TXT, and display all those words, which are less than 4 characters long.	3
	Section D **[15 Marks] [5x3]**	
31.	Indian School, in Mumbai is starting up the network between its different wings. There are four Buildings named as SENIOR, JUNIOR, ADMIN and HOSTEL as shown below:	5

ADMIN TO SENIOR	200m
ADMIN TO JUNIOR	150m
ADMIN TO HOSTEL	50m
SENIOR TO JUNIOR	250m
SENIOR TO HOSTEL	350m
JUNIOR TO HOSTEL	350m

The distance between various buildings is as follows:

SENIOR	130
JUNIOR	80
ADMIN	160
HOSTEL	50

1. Suggest the cable layout of connections between the buildings.
2. Suggest the most suitable place (i.e., building) to house the server of this school, with suitable reason.
3. Suggest the placement of the following devices with justification.
   a. Repeater b.Hub/Switch

4. The organization has an inquiry office in another city about 50-60 km

away in a hilly area. Suggest the suitable transmission media to interconnect to school and inquiry office out of the following :

    a) Fiber optic cable

    b) Microwave

    c) Radiowave

5. Suggest the best wired media to connect the buildings together.

32	a) Give Output of :	5

```
def Change (P, Q = 30) :
    P = P + Q
    Q = P - Q
    print (P,"@",Q)
    return P
R =150
S= 100
R=Change(R, S)
print(R,"@",S)
S=Change (S)
```

b) **The books table of test database contains the records shown below:-**

Title	ISBN
Die to Live	78127873915
Again?	23686286243
Ushakaal	12678987036
Ushakiran	42568987036

What will be the output produced by the following code:

import mysql.connector as sqltor.
conn = sqltor.connect (host = "localhost", user = "learner", passwd = "fast", database = "test")
cursor = conn.cursor()
cursor.execute("SELECT * FROM books")
row = cursor.fetchone()
while row is not None:
   print (row)
   row = cursor.fetchone()

OR

a)Predict the output of the following:
def student(firstname, lastname ='Mark', standard ='Fifth'):

```
        print(firstname, lastname, 'studies in', standard, 'Standard')
student("John")
student('George','Jose','Seventh')
```

b) The code given below reads the following record from the table named student and displays only those records whose address is 'Delhi'
RollNo – integer Name – string , Marks – integer ,Address-string,Phone-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 form the cursor object
Statement 2 – to execute the query that extracts records of those students whose address is 'Delhi'.
Statement 3- to read the complete result of the query (records who are from "Delhi") into the object named r, from the table student in the database.

```
import mysql.connector as con
mycon=con.connect(host="localhost",user="root",passwd="root",d
atabase="school")
if mycon.is_connected():
    print("SUCCESSFULLY CONNECTED")
else:
    print("CONNECTION FAILED")
mycursor=_____# statement1
mycursor.execute("_____")#statement2
r=mycursor._____()#statement3
for i in r:
 print(i)
 mycon.close()
```

| 33 | What are the characteristics of csv file? Write a Program in Python that defines and calls the following user defined functions:
 (i) ADD_PROD() – To accept and add information about a product into a csv file named 'product.csv'. Each record consists of prodname and price to store product name and price of the product
 (ii) (ii) DISPLAY_PROD() – To display details of products having price more than 100 present in the CSV file named 'product.csv'.
 OR
 When do we use csv file?. Write a Program in Python that defines and calls the following user defined functions: | 5 |

	(i) insert_ROLL()– To accept and add data of a student to a CSV file 'marks.csv'. Each record consists of a list with field elements as rollno, mark to store roll number and mark of students respectively. (ii) (ii) read_ROLL()- To count and display the records of the students.	

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Section E
(Competency Based Questions) [8 Marks] [4x2]

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34	Jahnavi creates the following two tables company and customer to help her in the business. Answer the questions given below that will help her further:	4

COMPANY

CID	NAME	CITY	PRODUCTNAME
111	SONY	DELHI	TV
222	NOKIA	MUMBAI	MOBILE
333	ONIDA	DELHI	TV
444	SONY	MUMBAI	MOBILE
555	BLACKBERRY	MADRAS	MOBILE
666	DELL	DELHI	LAPTOP

CUSTOMER

CUSTID	NAME	PRICE	QTY	CID
101	ROHAN SHARMA	70,000	20	222
102	DEEPAK KUMAR	50,000	10	666
103	MOHAN KUMAR	30,000	5	111
104	SAHIL BANSAL	35,000	3	333
105	NEHA SONI	25,000	7	444
106	SONAL AGGARWAL	20,000	5	333
107	ARUN SINGH	50,000	15	666

I)   Identify the most appropriate Primary keys for Tables Company and Customer.

II)   What is the cardinality and degree of table customer after adding another field 'PhoneNo' to it?

III)   A). Write SQL query to add one more record to the company table.
B). Write SQL query to Decrease the price by 10 percent for those customers who placed order for 10 or more quantities.

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OR (for part III only)

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III)   A). Write SQL query to increase the price by 1000 for those customer who have placed 5 or   lower quantities.
     B). Write SQL query to delete the records from table customer whose name has KUMAR.

35	Aradhana is creating a binary file student.dat that has structure (rollno, name, class, percentage). She wrote a program to update a record in the file. The program requires roll number to be fetched from the user whose name is to be updated. She has few doubts in the code. Help her to complete the task. import _____as p#Statement 1	4

```
        f1 = open('student.dat',_____)
        #Statement2
        r=int(input("enter roll no. which you want to
         search")) try:
                while True:
                        loc=f1.tell()
                        e = p.load(f1)
                        if e[0]= =r:
                                e[1]=input("enter name")
                                _____ #Statement3
                                p.dump(          ) #Statement4
         except:
                f1.close()
```

(i) Which module should be imported in the program? (Statement 1)
(ii) Write the correct statement required to open the file for her requirement. (Statement 2)
(iii)) Which statement should Aradhana fill in Statement 3 to move to the appropriate file position to write the updated data?
(iv) Statement 4 to write the data to student.dat file?

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