KENDRIYA VIDYALAYA SANGATHAN JABALAPUR REGION
FIRST PREBOARD EXAMINATION
CLASS : XII
SUBJECT : COMPUTER SCIENCE

MM: 70   **DURATION: 03 HOURS**

General Instructions:
- This question paper contains 37 questions.
- All questions are compulsory. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions.
- The paper is divided into 5 Sections- A, B, C, D and E.
- Section A consists of 21 questions (1 to 21). Each question carries 1 Mark.
- Section B consists of 7 questions (22 to 28). Each question carries 2 Marks.
- Section C consists of 3 questions (29 to 31). Each question carries 3 Marks.
- Section D consists of 4 questions (32 to 35). Each question carries 4 Marks.
- Section E consists of 2 questions (36 to 37). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.
- In-case of MCQ, text of the correct answer should also be written.

SECTION A

1. Which of the following is mutable data type in Python?   1
   a) Int   b) Dictionary   c) Float   d) a and c both

2. What will be the output of the following code?   1
   nums = [2, 4, 6, 8, 10]
   nums.insert(2, nums.pop())
   print(nums)

   a) [2, 4, 6, 8, 10]
   b) [2, 4, 10, 6, 8]
   c) [2, 10, 4, 6, 8]
   d) [2, 4, 6, 10, 8]

3. Evaluate following and choose correct answer: 1
   print(15 < 7 or not(29 < 19 and 25 > 74))

   a) True   b) False   c) Error   d) None

4. If cardinalities of tables **Products** and **Sales** are 6 and 4 respectively what will be the cardinality of the   1
   output of following SQL statement:

   Select Products.*,Sales.*
   From Products, Sales;

   a) 10   b) 64   c) 24   d) 46

5. What will be the output of: 1
   text = 'StudyHard'
   print(text[1:6:2])

   a) Suy   b) tudyH   c) tudyHa   d)tdH

6. If **s= "TariffWar"** What will be the output of **print (s.find("war"))**:   1
   a) 6   b) 5   c) -1   d) Error

7. What will be the output of: 1
   print((2**3**2 + 23%3)//250)

   a) 2   b) 0   c) 0.264   d) 2.056
8. Which of the following is used along with Alter table statement to remove a column from a table?   1

   a) Remove   b) Delete   c) Truncate   d) Drop
9. Which of the file opening mode will open the file for reading and writing in binary mode?   1
   a) rb   b) rb+   c) wb   d) a+
10. Output of: 1
    d ={'name':'Mahi','age':23,'city':'Raipur'}
    print(d.get('age','Not Found'))

    a) Not Found   b)Syntax error   c) get is not a valid method   d) 23
11. If you want to generate a random integer between 1 and 9 (inclusive), which of the following calls   1
    to randint() is correct?
    a) random.randint(1, 9)
    b) random.randint(0, 10)
    c) random.randint(1, 10)
    d) random.randint(0, 9)
12. The LEGB rule in Python dictates the order in which Python searches for names (variables, functions,   1
    classes, etc.) within your code. Which of the following is incorrect expansion of LEGB?

    a) Local   b) Extra   c) Global   d) Built-in
13. Which SQL command can change the cardinality of a relation?   1

    a) Alter table   b) Insert   c) drop   d) update
14. What will be the result of: 1
    s='HelloWorld'
    print(s.split('o'))

    a) ['Hell','W','rld']   b) ['Hell','oW','rld']   c) ['Hell','Wor','ld']   d) Error
15. Which command removes a table completely in SQL?   1
    a) Truncate   b) Delete   c) Drop   d) Alter
16. Which of the following is a DQL statement?   1

    a) Insert   b) Select   c) Drop   d) Delete
17. _____ is a protocol used for retrieving emails from a mail server.   1

    a) SMTP   b) POP3   c)Telnet   d) PPP
18. Which statement is true?   1
    a) Switch sends data to target device only.
    b) Hub sends data only to target device.
    c) Hub filters MAC addresses.
    d) Switch broadcasts data always
19. Which language forms the basic structure of a web page?   1
    a) CSS   b) HTML   c) JavaScript   d) XML
    Q20 and Q21 are Assertion(A) and Reason(R) 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.

20. (A): seek() method of the file object is used to move the file pointer in the file.   1
    (R) : seek() method can be used to move specific number of bytes in forward or backward direction.

21. Assertion (A): Primary key is a candidate key   1
    Reason (R): Candidate keys are the keys that uniquely identifies a row in the table.

SECTION B

22. **A.** Explain the difference between **for** and **while** loops in Python with example.   2

<div align="center">OR</div>

    B. Explain packing and unpacking of tuples in python with example.

23. Ravi has written a program to find whether a given number is palindrome but the program written by him   2
    has the logical and syntax errors, help him by rewriting the program after correcting the logical and syntax
    errors and underline each correction.

```
n=int(input("Enter number:"))
temp=n
rev=0
while(n < 0):
    dig==n%10
    rev=rev*10+dig
    n=n//10
if(temp=rev)
    print("The number is a palindrome!")
else:
    print("The number isn't a palindrome!")
```

24. **A**. What will be the output of the following python program?   2

```
str = ""
name = "9@Days"
for x in name:
    if x in "aeiou":
        str+=x.upper()
    elif not x.isalnum():
        str+="**"
    elif x.isdigit():
        pass
    else:
        str+=x.lower()
print(str)
```

<div align="center">OR</div>

    B. Write correct output of the code:

```
s = "info@gtech.com"
p=s.split("@")
p[0]= "queries"
datastring  = p[0] + "@" + p[1]
print(datastring)
```

25. **A.** Consider a list containing integers e.g. L= [5,3,9,7,2] write a program to multiply each value in the list by   2
    3 e.g. given list after multiplication should be L= [15,9,27, 21, 6].

<div align="center">OR</div>

B. Study the following code carefully and answer the questions given:

```
t = 7,3,5,9
p,*q,r = t
```

    i.   print(q)
    ii.   print(r)

26. Predict the output of the following python code: 2
```
data = [2,4,2,1,5,1,3,3,4,4]
d = {}
for x in data:
    if x in d:
        d[x]=d[x]+1
    else:
        d[x]=1
print(d)
```
27. **A.** Write difference between Char and Varchar datatypes in SQL.   2

<div align="center">OR</div>

    B. Differentiate between Count(columnname) and count(distinct columnname) with example.
28. **A.** Define Gateway and Router   2

<div align="center">OR</div>

    B. Explain Telnet and PPP

<div align="center">SECTION C</div>

29. **A.** A text file info.txt has some text written in it. Write a python function **countvowel()** that reads the   3
contents of the file and counts the occurrence of vowels(A,E,I,O,U) in the file.

<div align="center">OR</div>

    B. Write a program in python to Read lines from STORIES.TXT and display the words which ends with "te".
30. Consider a dictionary containing student details as below: 3
stu = { 'AdmNo': 102, 'name': 'Raghav', 'class' : 12}

Write following two functions to maintain a stack using a list which will contain the dictionary objects as above.

Write functions:
(i) Push(stu) – will push the dictionary object on the stack
(ii) Pop() – will pop the dictionary object from the stack and return it.
31. **A.** Predict the output of the following code: 3
```
d = {"apple": 15, "banana": 7, "cherry": 9}
str1 = ""
for key in d:
    str1 = str1 + str(d[key]) +"@"+"\n"
    str2 = str1[ :- 1]
    print(str2)
```

<div align="center">OR</div>

    B. Predict the output of the following code:

```
tuple1 = (11, 22, 33, 44, 55,66)
list1 =list(tuple1)
new_list = []
for i in list1:
```

```
        if i%2 == 0:
            new_list.append(i)
            new_tuple = tuple(new_list)
    print(new_tuple)
```

<div align="center">SECTION D</div>

32. Consider the following table "Courses"   4

<div align="center">Courses</div>

CID	CNAME	FEES	STARTDATE	TID
C201	Animation and VFX	12000	02-07-2022	101
C202	CADD	15000	15-11-2021	NULL
C203	DCA	10000	01-10-2020	102
C204	DDTP	9000	15-09-2021	104
C205	Mobile App Development	18000	01-11-2022	101
C206	Digital marketing	16000	25-07-2022	103

    A. Write SQL statements to:
       i. Display the names of courses and their IDs which has fee under 15000.

       ii. Display the details of courses which started after year 2020.

       iii. List the courses (course names) starting with letter D

       iv. List the names of courses along with Fees and applicable discount amount as 10% of the fees for the courses having fees more than 12000.

<div align="center">OR</div>

    B. Write result/output of the execution of following statements:
       i.   SELECT DISTINCT TID FROM COURSES;
       ii. SELECT CID, CNAME FROM COURSES WHERE TID IS NULL OR FEES < 10000;
       iii. SELECT CNAME, FEES FROM COURSES ORDER BY FEES DESC;
       iv. Delete from courses; (Write what will this statement result)

33. Write a Program in Python that defines and calls the following user defined functions: 4
    a. add() – To accept and add data of a Product to a CSV file "Product.csv". Each record consists of a list with field elements as pid, pname and price to store Product id, Product name and Product price respectively.

    b. search()- To display the records of the Product whose price is more than 20000 and product name starting with a vowel.

34. Consider following tables Students and Teachers: 4

<div align="center">Students</div>

SID	Name	Stipend	Stream	Marks	Grade	Class
1	Karan	400	Medical	78.5	B	12B
2	Divakar	450	Commerce	89.2	A	11C
3	Divya	300	Commerce	68.6	C	12C
4	Arun	350	Humanities	73.1	B	12C
5	Sabina	500	Nonmedical	90.6	A	11A
6	John	400	Medical	75.4	B	12B
7	Robert	250	Humanities	64.4	C	11A

Teachers

STREAM	TNAME	LOCATION
Medical	Jay Sharma	Delhi
Nonmedical	Reena Garg	Mumbai
Commerce	David	Delhi
Humanities	Sukhbir	Lucknow

Write SQL statements for following(option d has internal choice):
- a. Find out the number of students in each stream.
- b. Find out the average stipend given to Commerce Stream.
- c. Display the names of students taught by a teacher from Delhi
- d. Display the number of students taught by each teacher

OR

Find out the number of streams available using students table.

35. Ashutosh is working on a table Students in the database School. The table has following columns: **4**
rno (Roll number) – integer
name (Name) – string
DOB (Date of Birth) – Date
Fee – float

He uses root as user name and tiger as a password for the said database running on the local computer.

Write a program to add new record to the table through a python program where values for all the above-mentioned columns are to be input by user.
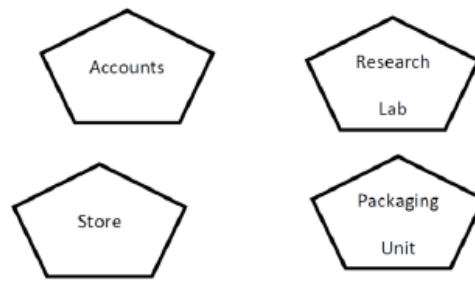
SECTION E

36. Consider a binary file "**StuData.DAT**" having following values stored using tuple object in the following sequence only:
- Student_ID – integer
- Student_Name – string
- Class – integer
- House – string

Write following functions:

    2
- a. A function to input the data of a student and append it in the file.   **3**
- b. A function to update(modify) the class of student whose Admission Number is given and change it to new value.

37. Reha Medicos Center has set up its new center in Dubai. It has four buildings as shown in the diagram given below: **5**

Distance between various building are as follows:

Accounts to research Lab	55m
Accounts to store	150m
Store to packaging unit	160m
Packaging unit to research lab	60m
Accounts to packaging unit	125m
Store to research lab	180m

No. of computers in each building are:

Accounts	25
Research Lab	100
Store	15
Packaging Unit	60

As a network expert, provide the best possible answer for the following queries:
a. Draw the cable layout to efficiently connect various buildings.
b. Suggest the most appropriate location of the server. Justify your choice.
c. Suggest the placement of the following device with justification:
   i. Repeater
   ii. Hub/Switch
d. Suggest a system (hardware/software) to prevent unauthorized access to or from the network.
e. i. Which cable is best suited for above layout.

<div align="center">OR</div>

ii. What type of network (PAN, LAN, MAN, or WAN) will be set up among the computers connected with each other?

<div align="center">--------------xxx--------------</div>