

BRAIN INTERNATIONAL SCHOOL

Session 2025-26

PRACTICE PAPER 1

Class XII

Subject – Computer Science (083)

General Instructions

1. All questions are compulsory.
2. Answer the questions after carefully reading them.
3. Use Python 3.8 / MySQL 5.7 syntax wherever applicable.
4. Marks for each question are indicated against them.

SECTION A – VERY SHORT ANSWER QUESTIONS (21 × 1 = 21 Marks)

Q1. Predict the output of:

```
x = [2, 5, 7, 10]
```

```
print(x[-1] - x[1])
```

Q2. Which Python keyword is used to handle exceptions?

Q3. What is the purpose of the finally block in exception handling?

Q4. Find the output:

```
"Brain".lower().count("a")
```

Q5. Write one use of the tell() function in file handling.

Q6. Name any two non-guided transmission media.

Q7. Expand: (a) HTTP (b) IP

Q8. Name one DML and one DDL command in SQL.

Q9. What is the default sorting order of the ORDER BY clause in SQL?

Q10. Define a router.

Q11. Write the output:

```
tuple1 = ("CS", "IP", "Maths")
```

```
print(len(tuple1))
```

Q12. What type of error occurs when you divide a number by zero in Python?

Q13. Mention one similarity and one difference between a **list** and a **tuple**.

Q14. What will be displayed by:

```
min("Brain", "Brains", "Brainy")
```

Q15. What is the purpose of commit() in SQL?

Q16. Define an IP address.

Q17. Name any one network security measure to prevent data theft.

Q18. Identify the output:

```
L = [3, 6, 9]
```

```
print(L * 2)
```

Q19. What is the function of the JOIN clause in SQL?

Q20. State one use of the GROUP BY clause in SQL.

Q21. Write any one difference between stack and queue.

SECTION B – SHORT ANSWER QUESTIONS – I (7 × 2 = 14 Marks)

Q22. Write a function in Python to display all even numbers from a list of integers passed as an argument.

Q23. Explain any two advantages of optical fibre cable.

Q24. Write SQL statements based on the table **Employee(EID, ENAME, DEPT, SALARY)**:

(i) Display names of employees working in the “IT” department.

(ii) Display all employee names in lowercase.

Q25. Predict the output:

try:

```
    print(10/0)
```

except:

```
    print("Error")
```

else:

```
    print("No Error")
```

26. Predict the output:

```
def change(lst):
```

```
    lst = lst[1:]
```

```
    lst.append(100)
```

```
    return lst
```

```
nums = [10, 20, 30]
```

```
new_nums = change(nums)
```

```
print(nums)
```

```
print(new_nums)
```

27. Predict output L

```
x = 10
```

```
def modify():
```

```
    global x
```

```
    x = x + 5
```

```
    def inner():
```

```
        x = 7
```

```
        print(x, end=' ')
```

```
    inner()
```

```
    print(x)
```

```
modify()
```

```
print(x)
```

28. Predict output

```
def compute(a, b=[]):
```

```
    b.append(a)
```

```
    return b
```

```
print(compute(5))
```

```
print(compute(10))
```

```
print(compute(15, []))
```

SECTION C – SHORT ANSWER QUESTIONS – II (5 × 3 = 15 Marks)

Q29. Write a user-defined function CountWords() that counts and prints the number of words in a text file story.txt.

Q30. Explain the following terms with one example each:

(a) Modem (b) Switch (c) Bandwidth

Q31. Consider the following tables and write the SQL queries:

CUSTOMER

CID NAME CITY

1 Raj Delhi
2 Riya Mumbai
3 Karan Jaipur

ORDERS

OID CID AMOUNT ODATE

11 1 6000 2024-08-01
12 2 5000 2024-09-03
13 1 7000 2024-10-10

- (i) Display customer name and total order amount (using GROUP BY).
- (ii) Display all orders placed in September 2024.
- (iii) Display name and city of customers using INNER JOIN.

Q32. Write a Python program using a list to implement a **stack** with Push and Pop operations.

Q33. Find the output:

```
d = {"A":10, "B":20, "C":30}
```

```
for k in d:
```

```
    print(k, d[k]+5)
```

SECTION D – LONG ANSWER QUESTIONS (3 × 4 = 12 Marks)

Q34. Write a Python program that reads a text file poem.txt and prints the total number of lines that contain the word “life”.

Q35. Write SQL queries for the given table **STUDENT**:

RollNo Name Class Marks DOB

1 Anuj XII 85 2007-03-05
2 Neha XII 92 2006-12-02
3 Riya XII 76 2007-09-10
4 Rahul XII 95 2006-10-18

- (i) Display names of students whose names start with ‘R’.
- (ii) Display average marks of the class.
- (iii) Display students scoring marks between 80 and 95.
- (iv) Display the current date using an SQL function.

Q36. Explain **OSI layers** and write functions of any four layers in brief.

SECTION E – CASE STUDY QUESTIONS (2 × 5 = 10 Marks)

Q37. (Python – Case Study)

A CSV file Result.txt contains data in the following format:

RollNo, Name, Marks

101, Arjun, 89

102, Neha, 95

103, Riya, 72

104, Kabir, 90

Write a Python program to:

- (a) Count the number of students scoring ≥ 90 marks.
- (b) Display all student names whose marks < 80 .
- (c) Display the total number of records in the file.

Q38. (Networking – Case Study)

A school has three blocks: **ADMIN**, **SCIENCE**, and **COMMERCE**.

Block	No. of Computers
-------	------------------

ADMIN	25
-------	----

SCIENCE	70
---------	----

COMMERCE	45
----------	----

The distances between blocks are as follows:

- ADMIN $\leftrightarrow$ SCIENCE = 60 m
- SCIENCE $\leftrightarrow$ COMMERCE = 90 m
- ADMIN $\leftrightarrow$ COMMERCE = 120 m

Tasks:

- (a) Suggest a suitable topology for connecting these blocks and draw its layout.
- (b) Suggest a suitable device to connect all computers within a block.
- (c) Suggest the most suitable transmission medium for connecting blocks and justify.
- (d) Suggest a suitable location for placing the server.
- (e) Mention one benefit of having a firewall in the network.

BRAIN INTERNATIONAL SCHOOL

Session 2025-26

PRACTICE PAPER 2

Class XII

Subject – Computer Science (083)

General Instructions:

1. All questions are compulsory.
2. Answer the questions after carefully reading the text.
3. Programming language to be used: Python 3.
4. Use SQL commands wherever applicable.

Section A (21 × 1 = 21 marks)

Each question carries 1 mark.

1. Identify the valid identifier from the following:
(a) roll-no (b) Roll No (c) roll_no (d) 1roll
2. Predict the output:
3. `print(7//2, 7%2)`
4. Which of the following data types is **immutable**?
(a) List (b) Dictionary (c) Tuple (d) Set
5. Write one similarity between lists and tuples.
6. Rewrite the following code correcting the error:
7. `for i in range[1,10]:`
8. `print(i)`
9. Which keyword is used in Python to handle exceptions?
10. What will be the output of the following code?
11. `print("abc".upper().isupper())`
12. Expand the following terms:
(a) URL (b) HTTP
13. Write any two advantages of a DBMS over a file system.
14. Name the command used to display the structure of a table in SQL.
15. Which SQL command is used to remove a table permanently?
16. Write the output:
`SELECT UPPER('Informatics');`
13. What is the default mode in which a file is opened using `open()` function?
14. Write the output:
`f = open("data.txt","w")`
`f.write("Python")`
`f.close()`
`print(f.closed)`
15. Which method is used to fetch all rows from a cursor object in Python?
16. State any one difference between LAN and WAN.
17. Write one advantage of using optical fibre over twisted pair cable.
18. Name any two transmission media.
19. What type of topology is shown below?
A ——— B ——— C ——— D
20. Define “Cybercrime”. Give one example.
21. Name the protocol used to send emails.

Section B (7 × 2 = 14 marks)

Each question carries 2 marks.

22. Rewrite the following code after removing all syntax errors:

```
def sum(a,b)
print(a+b)
sum(5,10)
```

23. Differentiate between append() and extend() methods of list. Give an example.

24. Write the output of the following code:

```
L=[10,20,30,40]
print(L[-3:4])
print(L[:2])
```

25. Consider the table **Student**:

RollNo Name Class Marks

1	Riya	XII	89
2	Aman	XII	95
3	Tanu	XI	82

Write SQL queries for:

(a) Display all student names in alphabetical order.

(b) Display names and marks of students scoring more than 85.

26. Write a Python function countUpper() that counts uppercase letters in a text file story.txt.

27. What are foreign keys? Give an example using table names.

28. State two differences between fetchone() and fetchall() in Python-MySQL connectivity.

Section C (5 × 3 = 15 marks)

Each question carries 3 marks.

29. Write a Python function CountVowelWords() that reads a text file and counts words starting with a vowel (A, E, I, O, U).

30. Predict the output:

```
def change(L):
    L[1] = 100
A = [10,20,30]
change(A)
print(A)
```

31. Consider the table **Library**:

BookID	Title	Author	Price
101	Python Basics	Sumita Arora	450
102	AI Concepts	John Mathew	500
103	SQL Master	Rakesh Sharma	400

Write SQL queries for:

(a) Display all books with price > 400.

(b) Display Title and Author in descending order of Price.

(c) Add a new column Publisher of type VARCHAR(20).

32. Write a Python program to read a CSV file sales.csv and display the total sales amount.

33. Explain any three types of network topologies.

Section D (3 × 4 = 12 marks)

Each question carries 4 marks.

34. Write a function in Python that reads a text file story.txt and displays:

- (i) total number of lines
- (ii) number of lines starting with 'A'.

35. Network Setup Question (5 marks)

AES Public School is setting up a new campus with 4 blocks as follows:

Block No. of Computers

Admin 20

Library 10

Lab 50

Hostel 10

Distance between the blocks (in meters):

From-To Distance

Admin-Library 50

Admin-Lab 120

Library-Lab 70

Lab-Hostel 100

Based on the above, answer the following:

- (a) Suggest a suitable layout (topology) for connecting all blocks.
- (b) Suggest the most suitable cable type and justify.
- (c) Suggest placement of server with justification.
- (d) Suggest one device needed to connect all computers in a single block.
- (e) Suggest a medium for providing internet access.

36. Write SQL queries for the following tables:

Table: CUSTOMER

CID Name City OrderNo

C1 Ramesh Delhi 011

C2 Suresh Mumbai 012

C3 Rajesh Delhi 013

Table: ORDERDETAIL

OrderNo Product Price

O11 Mouse 400

O12 Keyboard 600

O13 Monitor 800

Write SQL commands for:

- (a) Display names and cities of all customers who placed orders for items costing above ₹500 using a **join query**.
- (b) Display total number of customers from Delhi.
- (c) Display name and order number of customers whose order price is between ₹400 and ₹800.

Section E (2 × 4 = 8 marks)

Each question carries 4 marks.

37. Python + MySQL Connectivity Question:

Write a Python program using mysql.connector to insert a new record into table **Student(RollNo, Name, Marks)** by taking input from the user.

38. Pandas Question:

Consider the following DataFrame df:

```
import pandas as pd
data = {'Name':['Riya','Aman','Tanu','Meena'],
        'Marks':[89,95,82,91],
        'Grade':['A','A+','B','A']}
df = pd.DataFrame(data)
```

Write commands to:

- (a) Display names of students having Grade 'A+'.
- (b) Add a new column Result with values 'Pass' for all.
- (c) Display only the first two rows.
- (d) Display the average marks of students.