Delhi Public School, Howrah

PERODIC TEST III (2025-2026)

CLASS – XII

Care must be taken not to write anything on the question paper. All the questions must be attempted in the correct sequence.

SUBJECT: COMPUTER SCIENCE (CODE - 083)

THEORY EXAMINATION

Time Allowed:- 3 Hours **F.M.-70**

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. Riya checks the statement min([8,3,9]) and states that the returned value is 3; state if this is True or False. (1)

2. Write down the output of the code given below.

```
L = ["DATA","PYTHON","SCIENCE"]
print(L[2][1] + L[0][-2])
```

(1)

A) CT B) C A C) cA D) Y N

3. What will be the value for code given below?

```
print(7<2 or 4>=4 and not 9<5)
```

(1)

A) TRUE B) FALSE C) Error D) NO VALUE

4. Fill in the blank.

A database manager completes a JOIN operation and mentions that the JOIN returning only matching rows from both tables is _____. (1)

A) LEFT JOIN B) RIGHT JOIN C) INNER JOIN D) FULL JOIN

5. Aarav is exploring string slicing in Python. He uses the following code and wants to determine the output:

```
s = "PROGRAM"
print(s[-1::-2])
```

(1)

A) MGO B) MRA C) MGA D) MROP

6. A developer uses the following loop and notes that several incremented numbers are printed in sequence: Mention the sequence from the given code. (1)

```
for k in range(5, 20, 5):
  print(k+2, end="|")
```

7. Neha reviews the arithmetic computation below and states the final numerical value. Write down the value evaluated by Neha.
print(15 + 2**3*2 - 6/3) (1)

8. A trainee executes the SQL query below but faces an error because the clause placement is incorrect. What will be the correct positioning clause? (1)
```
SELECT dept, COUNT(*)
FROM staff
HAVING COUNT(*)>4
GROUP BY dept;
```

9. A user analyses the exception-handling code. Identify the text that will appear after execution of the given code.
```
try:
   a = int("AI")
except ValueError:
   print("INVALID")
except Exception:
   print("OTHER")
```
(1)
A) INVALID B) OTHER C) AI D) NO TEXT

10. Kunal retrieves key values from a dictionary and identifies the value displayed from the following code. Write down the code that will be displayed after identifying.
```
D={"name":"Sia","city":"Pune"}
print(D.get("salary","NONE"))
```
(1)
A) NONE B) SIA C) PUNE D) NULL

11. A data science student evaluates the loop below that accesses random indices and decides the sequence printed. What will be the output of the printed code given below. (1)
```
import random
L=[3,6,9,12]
x=random.randint(1,1)
y=random.randint(1,2)
for i in range(x, y+1):
   print(L[i], end="-")
```
A) 6-9- B) 9-12- C) 6- D) 3-6-9-12-

12. Meera analyzes the behaviour of the global variable in the following code. What printed pattern will she observe?
```
n=5
print(n,end='$$')
def calc():
   global n
   n = n + 4
   print(n,end='@@')
calc()
print(n)
```
(1)
A) 5$$9@@9 B)59@@9 C) 55@@9 D)95@@9

13. A database operator explains that the number of tuples changes when rows are added or deleted; identify the command that affects cardinality.
A) INSERT B) DELETE C) BOTH A & B D) UPDATE (1)

14. Rishabh checks the splitting of the following string. What structure will be created as a result?
```
x="Coding In Python Is Enjoyable"
```

print(x.split("n")) (1)
A) LIST WITH 4 PARTS B) LIST WITH 5 PARTS
C) LIST WITH EMPTY STRINGS D) ERROR

15. A relational table having 5 columns receives 3 more columns.Identify the degree of the table . (1)
A) 5 B) 6 C) 7 D) 8

16. A MySQL user wants to modify a column name. Which SQL command should be used to rename the column? (1)
A) MODIFY B) RENAME C) ALTER TABLE…CHANGE D) UPDATE

17. A mail client retrieves stored messages using a specific protocol; identify this protocol.
A) SMTP B) POP3 C) FTP D) TELNET

18. A network technician explains that one device connects multiple networks whereas another connects devices within the same network; identify the correct statement.
A) ROUTER–MULTIPLE NETWORKS, SWITCH–LAN
B) SWITCH–MULTIPLE NETWORKS, ROUTER–LAN
C) BOTH ARE WIRELESS DEVICES
D) SWITCH ASSIGNS IP ADDRESSES (1)

19. A web developer uses a scripting language to enable interactive elements on a webpage; identify this language. (1)
A) HTML B) CSS C) PYTHON D) JAVASCRIPT

Q20 and Q21 are ASSERTION AND REASONING based questions. Mark the correct choice as
(a)Both A and R are true but R is not the correct explanation for A
(b) A is True but R is False
(c)Both A and R are true and R is the correct explanation for A
(d)A is false but R is True
20. Assertion (A): Tuples in Python do not permit modification. (1)
Reason (R): Tuple objects do not offer methods like append () for adding values.

21. Assertion (A): A foreign key can contain NULL values in a table. (1)
Reason (R): A foreign key maintains referential integrity by linking two tables.

SECTION – B

22a. What is the difference between mutable and immutable data types in Python? Provide a brief explanation with suitable examples. (2)

OR

22b. Explain the difference between a parameter and an argument.

23. The function shown below contains errors. What is the correct version of this function? Rewrite it with all corrections clearly underlined. (2)

```
define cut_text(s):
 if len(s)<=1
  return s
 mid = s[1:-2]
 return mid
ans = cut_text("HELLO")
Print("Result",ans)
```

24a. Write two Python statements for the following tasks:
I. Convert a given string into uppercase.

II. Reverse the list L using an in-place method. (2)

OR

24b. Karan examines the following code. What values will be displayed when it is executed?

```
m = "Learning Python Through Practice"
print(m.partition("Python"))
print(m.count("e"))
```

25a. Write a function remove_value(L, v) that deletes the value v from list L if it exists; otherwise, it should display "NOT FOUND". (2)

OR

25b. Write a function merge_safe(d1, d2) that merges two dictionaries. If a duplicate key is found during merging, the function should display "KEY EXISTS".

26. Examine the following list-processing logic and determine the final list produced by the program:

```
scores = {"A": (60, 80), "B": (75, 85), "C": (55, 65)}
opt = []
for s in scores:
   avg = (scores[s][0] + scores[s][1]) / 2
   if avg >= 70:
      opt.append(s)
print(opt)
```

(2)

27a. A database administrator needs to perform two maintenance operations on the company's MySQL server. Write the SQL commands required for the following tasks:

I. Display all existing databases on the server.

II. Permanently remove the table named OFFICE from the database. (2)

OR

27b. Write a short comparison between TRUNCATE and DELETE, with suitable examples. (2)

28a. While setting up a school's computer lab for online examinations, the IT technician must ensure secure access and smooth video streaming. Briefly explain the terms Firewall and Bandwidth in this real-world situation. (2)

OR

28b. A web developer is configuring a college website and needs to verify certain internet protocols used during browsing. Write the full forms of HTTP and DNS. (2)

SECTION - C

29a. A data-analysis team is scanning research notes to identify lines containing specific keywords. Write a function that reads the file notes.txt and counts how many lines include the word "DATA". Print the total number of matching lines. (3)

OR

29b. While scanning a digital story archive, a developer needs to filter lines that end with vowel sounds for a text-analysis tool. Write a function that reads story.txt and prints only those lines that end with a vowel (case-insensitive).

30. A stack named ItemStack is to be managed using two functions. Write the required functions for the following tasks: (3)

I. push_item() must push only items priced above 100.

II. pop_item() must remove and print items until empty, and finally print "EMPTY STACK".

31A. Consider the following tables PRODUCT and ORDERS: (3)

Table: PRODUCT

pid	pname	price	stock
101	Laptop	55000	12
102	Keyboard	1500	40
103	Headphones	2200	25
104	Monitor	9000	10

Table: ORDERS

oid	pid	qty	customer
1	101	2	Riya
2	103	1	Aarav
3	102	5	Meera
4	101	1	Ishaan

I. Write a query that displays all product names along with ordered quantities by performing a join on both tables.
II. Write a query that displays the total ordered quantity for each product ID.
III. Write a query that displays details of products whose price is greater than 5000.

SECTION D

32A. Write the SQL queries for the following tasks on the SALES table: (4)
I. Display product-wise total quantity where the total exceeds 20.
II. Display all records sorted by quantity in descending order.
III. Display unique product names.
IV. Display records where customer names end with the letter “a”.

OR

32B. During the development of an e-commerce platform, the technical team must ensure that customers can safely access different sections of the website, such as product pages, payment gateway, and customer support. The team is reviewing various website addresses to verify whether they are valid and correctly formatted.
Based on this scenario, answer the following:
I. Explain the meaning of a URL and describe its major components.
II. Define the term domain name and state its importance for the company’s website.
III. Give two examples of valid URLs for different sections of the same website and identify their domain name.
IV. Describe what would happen if the domain name is incorrectly entered by the user.

33. A store manager named Rohan maintains all stock details of his shop in a CSV file named Stock.csv, where each record contains Item, Qty, and Rate. Write two Python functions to help him manage the inventory as follows: (4)
I. AddRecord() appends a new stock entry received from the user.
II. TotalValue() calculates and returns the complete stock value.

34. Answer the following questions using the HOTEL and BOOKING tables: (4)
I. Display bookings for customers staying in “Kolkata”.
II. Display hotel names having tariff above 5000.
III. Delete all bookings with check-in dates earlier than “2024-10-01”.
IV. Display either the Cartesian product OR a join showing customer names with hotel names.

35. Write a Python program to connect to MySQL using host='localhost', user='admin', password='sql123', database='StoreDB' and update the quantity to 50 for the product having code 400 in table PRODUCTS. (4)

Section – E

36. Rohan, a shopkeeper, stores his stock details in a CSV file named Stock.csv, which contains the fields Item, Qty, and Rate.
You are required to write two Python functions to assist him:
1. A function that takes a new stock item from the user and appends it as a new row in Stock.csv.
2. A function that reads all records from Stock.csv and computes the total stock value by multiplying the quantity and rate of each item.

Write both functions. (2.5+2.5=5)

37.a Answer the following questions based on the given networking scenario involving four buildings: LAB, OFFICE, SPORTS, and LIBRARY.

I. A question is required that identifies the most appropriate building for placing the server and provides a valid justification.

II. A question is required that suggests the correct placement of a switch and a repeater within the network layout.

III. A question is required that describes a suitable cable layout for connecting all four buildings.

IV. A question is required that recommends the most appropriate cable for establishing a 50-km wired link to the head office.

V. A question is required that explains either the purpose of VoIP or the type of network created when two cities are interconnected. (5)

OR

b. You have a stack named RedoStack that stores redo-action records for a text editor.
Each record is stored as a list containing action_id, username, and timestamp.
Write the following user-defined functions in Python to perform operations on the stack RedoStack:

(i) push_redo(RedoStack, new_record):
This function takes the stack RedoStack and a new redo action record new_record as arguments and pushes the new record onto the stack.

(ii) pop_redo(RedoStack):
This function removes and returns the topmost redo record from the stack.
If the stack is empty, the function must display "Underflow".

(iii) peek_redo(RedoStack):
This function displays the topmost record of the stack without deleting it.
If the stack is empty, the function must display "None".