



Delhi Public School, Howrah

PRE BOARD EXAMINATION (2024-2025)

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 (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.	The _____ statement terminates the execution of the whole loop. (a) continue (b) exit (c) jump (d) break	(1)
2.	Using a wrong formula for calculation generates a _____ error. (a) logical (b) syntax (c) semantic (d) runtime	(1)
3.	Division by zero is an example of _____ error. (a) run time (b) compile time (c) syntax (d) name	(1)
4.	What will be the output of the following code? T=(100) print (T*2) (a) Syntax error (b) (200) (c) 200 (d) (100, 100)	(1)
5.	For the function header given - def calc(X, Y=20): Which of the following function calls will give an error? (a) calc(15, 25) (b) calc(Y=25) (c) calc(X=15, Y=25) (d) calc(X=25)	(1)
6.	Which of the following is a function/method of the pickle module? (a) reader() (b) write()r (c) load() (d) read()	(1)
7.	Which of the following statement is not correct? (a) We can write content into a text file opened using 'w' mode (b) We can write content into a text file opened using 'w+' mode (c) We can write content into a text file opened using 'r' mode (d) We can write content into a text file opened using 'r+' mode	(1)
8.	Which of the following python modules is imported to store and retrieve objects using the process of serialization and de-serialization? (a) csv (b) binary (c) math (d) pickle	(1)

9.	To read the remaining contents of the file from the current cursor position as a string from a file object named 'infile', we use _____. (a) infile.read() (b) infile.read(2) (c) infile.readline() (d) infile.readlines()	(1)
10.	Which of the following method reflects the changes made in the database permanently? (a) <connection>.done (b) <connection>.commit (c) <connection>.close (d) <connection>.final	(1)
11.	The special control structure that facilitates row by row processing of records in a result set is called- (a) database cursor (b) tuple (c) list (d) row	(1)
12.	Which method of cursor class is used to fetch limited rows from a database table? (a) cursor.fetchsize(size) (b) cursor.fetchall(size) (c) cursor.fetchmany(size) (d) cursor.fetchone(size)	(1)
13.	Which of the following is not an aggregate function? (a) AVG (b) MAX (c) JOIN (d) COUNT	(1)
14.	Given the statement: SELECT emp_no, name FROM employee _____ designation; Which of the following option will be used to display the employee number and names of similar designation together? (a) FIELD BY (b) SORT BY (c) ORDER BY (d) GROUP BY	(1)
15.	Consider the following statement: SELECT * FROM product ORDER BY rate _____, item_name _____; Which of the following option should be used to display the 'rate' from larger to smaller and 'name' in alphabetical order? (a) ASC, DESC (b) Ascending, Descending (c) DESC, ASC (D) Descending, Ascending	(1)
16.	The attributes which have all the properties of primary key is called _____. (a) Candidate Key (b) Foreign Key (c) Alternate Key (d) Unique Key	(1)
17.	Fill in the blank: A modem at the at the sender's computer end acts as a _____. (a) Model (b) Modulator (c) Demodulator (d) Converter	(1)
18.	Which of the following transmission media has the highest bandwidth? (a) Co-axial cable (b) Twisted Pair cable (c) Fiber Optic cable (d) Telephonic cable	(1)
19.	A network with all client and no server is called _____. (a) Networking (b) Peer to Peer computing (c) Client Server Computing (d) Packet Switching	(1)
<p>Q20 and Q21 are ASSERTION (A) AND REASONING (R) based questions. Mark the correct choice as-</p> <p>(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.</p>		
20.	Assertion (A): If the arguments in a function call statement match the number and order of arguments as defined in the function definition, such arguments are called positional arguments. Reason (R): During a function call, the argument list first contains default argument(s) followed by positional argument(s)	(1)
21.	Assertion (A): CSV (Comma Separated Values) is a file format for data storage which looks like a text file. Reason (R): The information is organized with one record on each line and each field is separated by a comma.	(1)
SECTION - B (2 X 7 = 14 Marks)		
22.	Sahil is learning Stack operations using Python. He came to know that Stacks usually follow the LIFO architecture during insertion/deletion operation. Explain Sahil the reason behind the LIFO architecture followed by Stacks.	(2)
23.	Explain with the syntax of seek() and tell() methods of Python text file using suitable code snippets.	(2)
24.	If L1=[1, 2, 3, 2, 1, 2, 4, 2, . . .], and L2=[10, 20, 30, . . .], then (Answer using built-in functions only) (I) A) What will be the statement to assign all the items of L2 into L1?	(2)

	<p style="text-align: center;">OR</p> <p>B) What will be the statement to delete the last item from L1? (II)</p> <p>A) What will be the statement to assign the first item of L2 as the last item of L1?</p> <p style="text-align: center;">OR</p> <p>B) Write the statement to delete all items of L1 and convert it into an empty list.</p>	
25.	<p>A) Given is a Python list declaration: Listofnames = ["Aman", "Ankit", "Ashish", "Rajan", "Rajat"] Write the output of: print (Listofnames [-1 : -4 : -1])</p> <p>B) Consider the following tuple declaration: tup1 = (10, 20, 30, (10, 20, 30), 40) Write the output of: print (tup1.index(20))</p>	(2)
26.	<p>Atharva is a Python programmer working on a program to find and return the maximum value from a list. The code written below has syntactical errors. Rewrite the correct code and underline the corrections made.</p> <pre>def max_num (L) max = L (0) for a in L: if a > max max=a return max</pre>	(2)
27.	<p>(I)</p> <p>A) Define the terms CHAR and VARCHAR data types in SQL with appropriate example.</p> <p style="text-align: center;">OR</p> <p>B) What do you understand by DDL and DML commands in SQL? Explain in brief with examples.</p> <p>(II)</p> <p>A) Explain the use of 'Foreign Key' in a relational Database Management System.</p> <p style="text-align: center;">OR</p> <p>B) Differentiate between count() and count(*) functions in SQL with appropriate example.</p>	(2)
28.	<p>A) Differentiate between wired and wireless transmission with examples.</p> <p style="text-align: center;">OR</p> <p>B) Differentiate between URL and Domain Name with the help of appropriate example.</p>	(2)
SECTION - C (3 X 3 = 9 Marks)		
29.	<p>A) Write a Program in Python that defines and calls the following user defined functions: (i) ADD() – To accept and add data of an employee to a CSV file "record.csv". Each record consists of a list with field elements as emp_id, name and emp_sal to store employee id, employee name and employee salary respectively. (ii) COUNTR() – To count the number of records present in the CSV file named "record.csv"</p> <p style="text-align: center;">OR</p> <p>B) Write a Program in Python that defines and calls the following user defined functions: (i) add() – To accept and add data of an employee to a CSV file "furdata.csv". Each record consists of a list with field elements as fid, fname and fprice to store furniture id, furniture name and furniture price respectively. (ii) search() – To display the records of the furniture whose price is more than 10000.</p>	(3)
30.	<p>A) Write the definition of a Python function named LongLines() which reads the contents of a text file named LINES.TXT and displays those lines from the file which have at least 10 words in it. For example, the content of 'LINES. TXT' can be shown as given below: Once upon a time, there was a woodcutter. He lived in a little house in a beautiful, green wood. One day, he was merrily chopping some wood. He saw a little girl skipping through the woods, whistling happily. The girl was followed by a big gray wolf. Then the function should display output as: He lives in a little house in a beautiful, green wood.</p>	(3)

He saw a little girl skipping through the woods, whistling happily.

OR

B) Write a function count_Dwords() in Python to count the words ending with a digit in a text file "Details. txt".

For example, the content can be shown as given below:

On seat2 VIP1 will sit and

On seat1 VIP2 will be sitting

Output will be:

Number of words ending with a digit are 4

31. Predict and explain the output of the code given below:

(3)

```
def makenew (mystr):
    newstr= ""
    count=0
    for i in mystr:
        if count%2!=0:
            newstr=newstr+str(count)
        else:
            if i.lower():
                newstr=newstr+i.upper()
            else:
                newstr=newstr+i
    count+=1
    print(newstr)
makenew ("No@1")
```

OR

Write and explain the output of the code given below:

```
def short_sub (lst, n):
    for i in range (0, n):
        if len(lst) > 4:
            lst[i] = lst[i] + lst[i]
        else:
            lst[i] = lst[i]
subject = ['CS', 'HINDI', 'PHYSICS', 'CHEMISTRY', 'MATHS']
short_sub (subject, 5)
print (subject)
```

SECTION – D (4 X 4 = 16 Marks)

32. Consider the tables COMPUTER and SALES given below:

(4)

Table: COMPUTER

PROD_ID	PROD_NAME	PRICE	COMPANY	TYPE
P001	MOUSE	200	LOGITECH	INPUT
P002	LASER PRINTER	4000	CANON	OUTPUT
P003	KEYBOARD	500	LOGITECH	INPUT
P004	JOYSTICK	1000	IBALL	INPUT
P005	SPEAKER	1200	CREATIVE	OUTPUT
P006	DESKJET PRINTER	4300	CANON	OUTPUT

Table: SALES

PROD_ID	QTY_SOLD	QUARTER
P002	4	1
P003	2	2
P001	3	2
P004	2	1

A) Write outputs for the following queries:

(i) SELECT MIN (PRICE), MAX (PRICE) FROM COMPUTER;

(ii) SELECT COMPANY, COUNT(*) FROM COMPUTER GROUP BY COMPANY HAVING COUNT

(COMPANY) > 1;

(iii) SELECT PROD_NAME, QTY_SOLD FROM COMPUTER C, SALES S WHERE C.PROD_ID=S.PROD_ID AND TYPE= 'INPUT';

(iv) SELECT PROD_NAME, COMPANY, QUARTER FROM COMPUTER C, SALES S WHERE C.PROD_ID= S.PROD_ID;

OR

B) Write SQL queries for the following operations:

(i) To insert the row bearing the PROD_ID as 'P006'.

(ii) To display the product name and quantity sold of those items whose price is less than 1200.

(iii) To display the count of input devices.

(iv) To display the product id, product name and quarter of those products whose company is 'LOGITECH'.

33. Sangeeta is a Python programmer working in a computer hardware company. She has to maintain the records of the peripheral devices. She created a CSV file named Peripheral.csv to store the details. The structure of Peripheral.csv is:
[P_id, P_name, Price], where
Pid is Peripheral device ID (integer)
Pname is Peripheral device name (string)
Price is Peripheral device price (integer)
- Sangeeta wants to write the following user defined functions:
Add_Device(): to accept a record from the user and add it to the csv file, Peripheral. Csv.
Count_Device(): to count and display number of peripheral devices whose price is less than 1000.
Help Sangeeta to write the program and execute it successfully.

34. Navdeep creates a table RESULT with a set of records to maintain the marks secured by students in Sem 1, Sem2, Sem3 and their division. After creation of the table, he has entered data of 7 students in the table.

Table: RESULT

ROLL_NO	SNAME	SEM1	SEM2	SEM3	DIVISION
101	KARAN	366	410	402	I
102	NAMAN	300	350	325	I
103	ISHA	400	410	415	I
104	RENU	350	357	415	I
105	ARPIT	100	75	178	IV
106	SABINA	100	205	217	II
107	NEELAM	470	450	471	I

Based on the data given above answer the following questions:

- (i) If 2 columns are added and 2 rows are deleted from the table result, what will be the new degree and cardinality of the above table?
- (ii) Write the statements to:
- Increase the SEM2 marks of the students by 3% whose name begins with 'N'.
 - Delete the record of students securing IV division.
 - Add a column REMARKS in the table with data type as varchar with 50 characters
35. A table named 'stu_prof' present in the database 'stu_det' in MySQL database server has the following structure.
- Id varchar(10) primary key
 - name varchar(30)
 - email varchar(40)
 - mob_no int(10)
- Write a python program that will create a connection with MySQL server and execute SQL query from the Python interface to create the table 'stu_prof' using the following parameters for Python-Database connectivity:
host="localhost", user="root", password="1234"

SECTION - E (5 X 2 = 10 Marks)

36. The school has asked their estate manager Mr. Rahul to maintain the data of all the labs in a table LAB. Rahul has created the table and data of 5 labs.

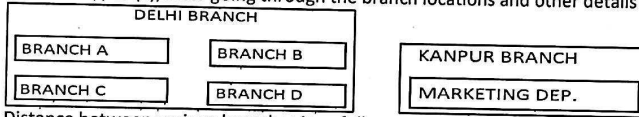
Table: LAB

LABNO	LAB_NAME	INCHARGE	CAPACITY	FLOOR
L001	CHEMISTRY	Daisy	20	I
L002	BIOLOGY	Venky	20	II
L003	MATH	Preeti	15	I
L004	LANGUAGE	Daisy	36	III
L005	COMPUTER	Mary	37	II

Based on the data given above answer the following questions:

- (i) Identify the columns which can be considered as Candidate keys.
- (ii) Write the degree and cardinality of the table.
- (iii) Write the statements to:
 - (a) Insert a new row with the data – (L006, PHYSICS, Joseph, 35, III).
 - (b) Increase the capacity of all the labs by 10 students which are on 'I' Floor.
 - (c) Add a constraint PRIMARY KEY to the column LABNO in the table.

37. Quickdev, an IT based firm, located in Delhi is planning to set up a network for its four branches within a city with its Marketing department in Kanpur. As a network professional, give solutions to the questions (i) to (v), after going through the branch locations and other details which are given below.



Distance between various branches is as follows:

Branch	Distance
Branch A to Branch B	40 m
Branch A to Branch C	80 m
Branch A to Branch D	65 m
Branch B to Branch C	30 m
Branch B to Branch D	35 m
Branch C to Branch D	15 m
Delhi Branch to Kanpur	300 km

Number of computers in each of the branches:

Branch	Number of computers
Branch A	15
Branch B	25
Branch C	40
Branch D	115

- (i) Suggest the most suitable place to install the server for the Delhi branch with a suitable reason.
- (ii) Suggest an ideal layout for connecting all these branches within Delhi.
- (iii) Which devices will you suggest, that should be placed in each of these branches to efficiently connect all the computers within these branches?
- (iv) Delhi firm is planning to connect to its Marketing department in Kanpur which is approximately 300 km away. Which type of network out of LAN, WAN or MAN will be formed? Justify.
- (v) Suggest a protocol that shall be needed to provide help for transferring of files between Delhi and Kanpur branch.