

SAMPLE PAPER – 1

SUBJECT: COMPUTER SCIENCE

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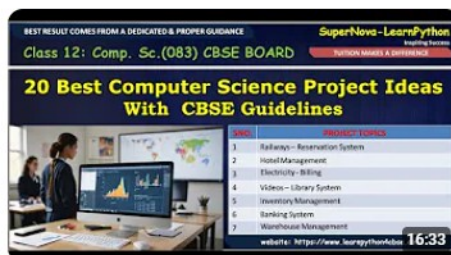
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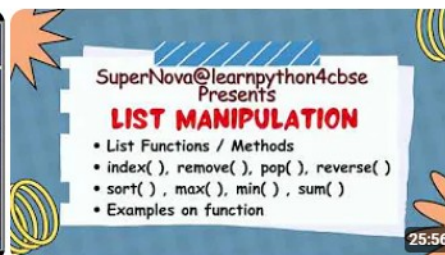
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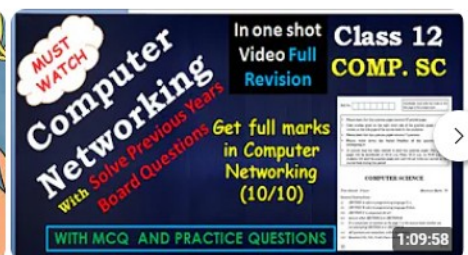
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**SAMPLE PAPER – 1**

Code: Learnpython4cbse-1/5(25CBSE01)

COMPUTER SCIENCE 12TH (CODE 083)**General Instructions:****Time: 3 Hrs.****Max. Marks: 70**

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

SECTION A**[21x1= 21]**

- 1** State True or False: **1**
The Python interpreter handles logical errors during code execution.
- 2** Identify the output of the following code snippet: **1**

```
x="AnnualMeetattheCampus"
x=x.split('a')
y=x[0]+"."+x[1]+"."+x[2]+x[3]
print(y)
```

(A) Annu.l Meet .t the Cmpus (B) nnu.l Meet .t the Cmpus
 (C) Error (D) Annu.l Meet .t the Campus

3 Which of the following expressions evaluates to True? **1**
 (A) not(False) and True

- (B) True and False
(C) not(False or True)
(D) True and not(True)
- 4** What is the output of the expression? **1**
Select the correct output of the code :
S= "SUPER NOVA @ 2025"
A=S.partition (" ")
print (A)
(A) ('SUPER NOVA ','@','2025')
(B) ['SUPER','NOVA',' @ ','2025']
(C) ('SUPER', 'NOVA @ 2025')
(D) ('SUPER',' ', 'NOVA @ 2025')
- 5** What will be the output of the following code snippet? **1**
message= "Cbse Examination 2025"
print(message[-3::-3])
- 6** What will be the output of the following code? **1**
tup1 = (1,2,[1,2],3)
tup1[2][1]=3.14
print(tup1)
(A) (1,2,[3.14,2],3) (B) (1,2,[1,3.14],3)
(C) (1,2,[1,2],3.14) (D) Error Message
- 7** If Rec_dict is a dictionary as defined below, then which of the following statements will **1**
raise an exception?
Rec_dict = {'Hindi': 100, 'IP': 200, 'Eng': 300}
(A) Rec_dict.get('IP')
(B) print(Rec_dict['Hindi', 'Eng'])
(C) Rec_dict['Hindi']=200
(D) print(str(Rec_dict))

- 8** What does the Lst.extends(x) method do? **1**
- (A) Extend method helps you to insert the list of element from the starting of the list
(B) Extend method helps you to insert the list of element at the end of the list
(C) Extend methods helps you to insert the list of element anywhere we want
(D) Extend method helps you to insert the element from the starting of the list
- 9** Suppose a tuple T is declared as T = (10, 12, 43, 39), which of the following is incorrect? **1**
- (A) print(T[1]) (B) T[2] = -29
(C) print(max(T)) (D) print(len(T))
- 10** Ms. Sejal is working on the sports.dat file but she is confused about how to read data from the binary file. Suggest a suitable line for her to fulfill her wish. **1**
- ```
import pickle
def sports_read():
 f1 = open("sports.dat","rb")

 print(data)
 f1.close()
sports_read()
```
- (A) data = f1.load(f) (B) d=f.open(f)  
(C) data = f1.read(f) (D) data = f1.dump(f)
- 11** State whether the following statement is True or False: **1**
- Except block is used to catch and handle the exception(s) that are encountered in the try clause.
- 12** What will be the output of the following code? **1**
- ```
x = 3
def myfunc():
    global x
    x+=2
    print(x, end=' ')
print(x, end=' ')
```

myfunc()

print(x, end=' ')

(A) 3 3 3 (B) 3 4 5 (C) 3 3 5 (D) 3 5 5

13 Sonia wants to see all the databases are available in her MySQL software. Which command is useful for her? **1**

14 What will be the output of the following MySQL statement? **1**

SELECT * FROM employee

WHERE Lname **LIKE** 'F%' **OR** Lname **LIKE** '%T';

- (A) All employees whose last name should started with 'T' and end with 'F'
- (B) Names of all employees whose last name should started with 'T' and end with 'F'
- (C) All employees whose last name should started with 'F' and end with 'T'
- (D) Names of all employees whose last name should started with 'F' and end with 'T'

15 Which among the following are the correct representation of "float(4,2)"? **1**

- (A) 24.33 (B) 124.4
- (C) 12.123 (D) Both (A) and (B)

16 Which of the following set of functions is a valid set of aggregated functions in MySQL? **1**

- (A) AVG(),ROUND(),COUNT() (B) MIN(),UPPER(),AVG()
- (C) COUNT(),MAX(),SUM() (D) DATE(),COUNT(),LTRIM()

17 Which of the following protocols allows use of HTML on the World Wide Web **1**

- (A) HTTP (B) PPP
- (C) FTP (D) POP

18 Which of the following wireless transmission medium is best suited for MAN ? **1**

- (A) Microwave (B) Radio Link
- (C) Infrared (D) Bluetooth

19 In ___ switching, before a communication starts, a dedicated path is identified between the sender and the receiver. **1**

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 Assertion (A): Python allows function arguments to have default values; if the function is called without the argument, the argument gets its default value. **1**

Reason (R): During a function call, the argument list first contains default argument(s) followed by positional argument(s).

21 Assertion (A): Both DELETE and DROP TABLE carries out the same thing – deletion in tables. **1**

Reason (R): The DELETE command deletes the rows and DROP TABLE deletes the whole table.

SECTION B

[7x2= 14 Marks]

22 How is a List different from Tuple object in Python? **2**

Identify one mutable object and one immutable object from the following:

('A','B'), ['A','B'], {'A':1,'B':2}, 'XYZ'

23 Give two examples of each of the following: **2**

(I) Logical operators (II) Membership operators

24 If str1='superNova' then **2**

(Answer using builtin functions only)

(I) A) To change the first character of the string str1 in capital letter.

OR

B) To replace all occurrence of letter 'e' in the string str1 with '*'.

(II) A) To display the starting index for the substring 'Nova'.

OR

B) To change the case of the given string str1.

25 Identify the correct output(s) of the following code. Also write the minimum and the maximum possible values of the variable final. **2**

```
import random
```

```
elements=[180,90,77,65,33,12,54,4,219]
```

```
beg=random.randint(1,4)
```



```
final=random.randint(beg,5)
```

```
for z in range(beg,final+1):
```

```
    print(elements[z],"@")
```

(a) 90 @

77 @

65 @

33 @

(c) 180 @

12 @

(b) 90 @

77 @

54 @

4 @

(d) 90 @

4 @

- 26** Riya was asked to accept a list of even numbers, but she did not put the relevant condition while accepting the list of numbers. She wrote a user defined function odd to even (L) that accepts the list L as an argument and converts all the odd numbers into even by multiplying them by 2. **2**

```
def oddtoeven (L)
```

```
    for i in range (size(L)):
```

```
        if (L[i]%2! == 0)
```

```
            L[i]= L[i] ** 2
```

```
    return L
```

```
result = oddtoeven([1, 2, 3, 4])
```

```
print("Odd to Even: " result)
```

There are some errors in the code . Rewrite the correct code.

- 27** (I) **2**

A) What constraint should be applied on a table column so that default value is assigning in that column, if the value is not provided or given.

OR

B) What constraint should be applied on a table column so it ensures that all values in a column satisfy certain condition?

(II) A) Write an SQL command to create a FOREIGN KEY constraint on the "PersonID" column when the "Orders" and "Person" table is already created. The Column "PersonID" is primary key in "Person" table.

OR

B) Write an SQL command to to remove a FOREIGN KEY constraint from a table, named Order. PersonID is the foreign key of the table.

28 A) List one advantage and one disadvantage of Bus topology. **2**

OR

B) Expand the term FTP. What is the use of FTP?

SECTION C

[3x3= 9 Marks]

29 A) Write a function CountHisHer() in Python which reads the contents of a text file "Story.txt" and counts the words His and Her (not case sensitive). **3**

OR

B) Write a Python program to find the longest word in file "status.txt". If contents of status.txt are

Welcome to your one step solutions for all your study, practice and assessment need for various competitive and recruitment examinations and school segment. We have been working tirelessly for over a decade to make sure that you have best in class study resources because you deserve SUCCESS AND NOTHING LESS...

Output should be

Longest word : examinations

30 A) You have a stack named MagazinesStack that contains records of Magazines. Each Magazine record is represented as a list containing magazine_title, author_name, and publication_year. **3**

Write the following user-defined functions in Python to perform the specified operations on the stack MagazinesStack:

(I) push_Magazine(MagazinesStack, new_Magazine): This function takes the stack MagazinesStack and a new Magazine record new_magazine as arguments and pushes the new magazine record onto the stack.

(II) pop_Magazine (MagazinesStack): This function pops the topmost Magazine record from the stack and returns it. If the stack is already empty, the function should display "Underflow".

(III) peep(MagazinesStack): This function displays the topmost element of the stack

without deleting it. If the stack is empty, the function should display 'None'.

OR

B) Write the definition of a user-defined function `push_odd(N)` which accepts a list of integers in a parameter `N` and pushes all those integers which are odd from the list `N` into a Stack named `OddsNumbers`.

Write function pop_odd() to pop the topmost number from the stack and returns it. If the stack is already empty, the function should display "Empty".

Write function Disp_odd() to display all element of the stack without deleting them. If the stack is empty, the function should display 'None'.

For example:

If the integers input into the list `VALUES` are:

[10, 5, 8, 3, 12]

Then the stack `OddsNumbers` should store:

[5, 3]

31 Predict the output of the following code:

3

```
D={1:"One", 2:"Two", 3:"Three",4:"Four",30:"Thirty"}
```

```
L=[]
```

```
for K,V in D.items():
```

```
    if V[0]=="T":
```

```
        L.append(K)
```

```
print(L[::-1])
```

OR

Predict the output of the following code:

```
str1="Hello SuperNova"
```

```
cn=0
```

```
for i in str1:
```

```
    cn=cn+1
```

```
new=str1[0:2]+str1[cn-2:cn]
```

```
print(new)
```

SECTION D

[4x4= 16 Marks]

32 Consider the following tables STORE and answer the questions:

4

Table: STORE

| ItemNo | Item | Scode | Qty | Rate | LastBuy |
|--------|-------------------|-------|-----|------|-----------|
| 2005 | Sharpener Classic | 23 | 60 | 8 | 31-JUN-09 |
| 2003 | Balls | 22 | 50 | 25 | 01-FEB-10 |
| 2002 | Gel Pen Premium | 21 | 150 | 12 | 24-FEB-10 |
| 2006 | Gel Pen Classic | 21 | 250 | 20 | 11-MAR-09 |
| 2001 | Eraser Small | 22 | 220 | 6 | 19-JAN-09 |
| 2004 | Eraser Big | 22 | 110 | 8 | 02-DEC-09 |
| 2009 | Ball Pen 0.5 | 21 | 180 | 18 | 03-NOV-09 |

Note: The table contains many more records than shown here.

A) Write the following queries:

(I) To display the total Quantity for each Item, excluding Products with total Quantity less than 60.

(II) To display the Store table sorted by Rate in descending order.

(III) To display the distinct item names from the Store table.

(IV) Display the sum of Rate as total Rate of all the orders for which the quantity is null.

OR

B) Write the output

(I) SELECT * FROM STORE ORDER BY LastBuy;

(II) SELECT * FROM STORE WHERE Scode = 22 and Qty >= 110;

(III) SELECT Scode, MIN(Rate) FROM STORE GROUP BY Scode;

(IV) SELECT Item, Qty FROM STORE WHERE Item LIKE '%Pen%';

33 Riya, a computer science teacher at a high school, is managing a database for tracking students' programming projects. She has created a CSV file named "Projects.csv" with the following structure: [Proj_ID, Proj_Title, St_Name, Status] Where:

4

Proj_ID is the project ID (integer)

Proj_Title is the title of the programming project (string)

St_Name is the student name (string)

Status represents the project status, which can be 'Completed', 'In Progress', or 'Not

Started'.

Riya wants to enhance her program by implementing the following user-defined functions:

acceptProject() - To accept a new project record from the user and add it to the "Projects.csv" file. The column headings should be added at the top of the CSV file.

completedProjectsCount() - To count the number of projects that are marked as 'Completed'.

Assist Riya in completing these functions.

- 34** Saman has been entrusted with the management of Law University Database. He needs **4** to access some information from FACULTY and COURSES tables for a survey analysis. Help him extract the following information by writing the desired SQL queries as mentioned below.

Table: Author

| AuthorID | AuthorName | BirthYear | Nationality |
|----------|--------------------------|-----------|-------------|
| A001 | J.K. Rowling | 1965 | British |
| A002 | George R.R. Martin | 1948 | American |
| A003 | Haruki Murakami | 1949 | Japanese |
| A004 | Chimamanda Ngozi Adichie | 1977 | Nigerian |
| A005 | Arundhati Roy | 1961 | Indian |
| A006 | Ruskin Bond | 1934 | Indian |

Table: Book

| BookID | Title | AuthorID | Genre | Price(INR) |
|--------|--|----------|----------------------|------------|
| B001 | Harry Potter and the Philosopher's Stone | A001 | Fantasy | 351 |
| B002 | A Game of Thrones | A002 | Fantasy | 483 |
| B003 | Norwegian Wood | A003 | Fiction | 341 |
| B004 | Half of a Yellow Sun | A004 | Historical Fiction | 381 |
| B005 | The Wind-Up Bird Chronicle | A003 | Magic Realism | 418 |
| B006 | Americanah | A004 | Contemporary Fiction | 339 |
| B007 | The God of Small Things | A005 | Fiction | 302 |

| | | | | |
|------|-------------------|------|-----------------------|-----|
| B008 | The Blue Umbrella | A006 | Children's Literature | 120 |
|------|-------------------|------|-----------------------|-----|

- (I) Display the titles and prices of books written by Indian authors.
- (II) Display the average price of books in each genre.
- (III) Display the titles of books and genres of books that belong to either the 'Fiction' or 'Fantasy' and arrange the results in descending order.
- (IV) (A) Write a command to change the data type of the column Price from integer to decimal (8,2).

OR

(B) To display the Cartesian Product of these two tables.

35 A table, named STUDENT, in SCHOOL database, has the following structure: **4**

| Field | Type |
|--------|-------------|
| Sadmno | Int(11) |
| Sname | Varchar(20) |
| Sperc | Float |
| Sclass | Int |

Write the following Python function to perform the specified operation:

InsertAndShow(): To input details of a student and store it in the table STUDENT. The function should then retrieve and display all records from the STUDENT table where the Sperc is greater than 85.

Assume the following for Python-Database connectivity:

Host: localhost, User: root, Password: SuperNova

SECTION E

[2x5= 10 Marks]

36 Shaan is a manager working in a company. He needs to manage the records of various employees. For this, he wants the following information of each employee to be stored: **5**

- Emp_ID – integer
- Emp_Name – string
- Designation – string
- Experience – float

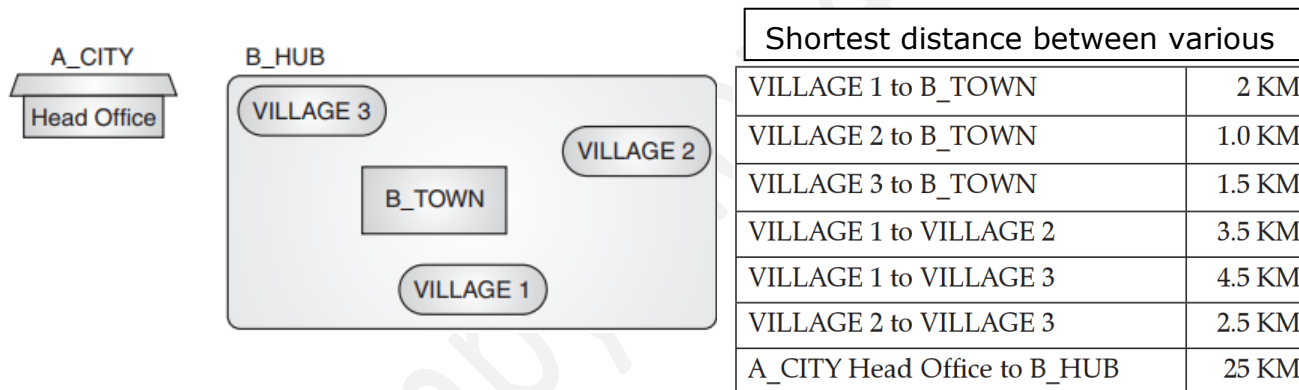
You, as a programmer of the company, have been assigned to do this job for Shaan.

(I) Write a function to input the data of an employee and append it in a binary file.

(II) Write a function to update the data of employees whose experience is more than 15 years and change their designation to "Asst Manager".

(III) Write a function to read the data from the binary file and display the data of all those employees who are not "Asst Manager".

37 Uplifting Skills Hub India is a knowledge and skill community which has an aim to uplift the standard of knowledge and skills in the society. It is planning to setup its training centres in multiple towns and villages pan India with its head offices in the nearest cities. They have created a model of their network with a city, a town and 3 villages as follows. You, as a network expert, need to suggest the best network-related solutions for them to resolve the issues/problems mentioned in points (I) to (V), keeping in mind the distances between various blocks/buildings and other given parameters. **5**



Number of Computers installed at various locations are as follows :

| | |
|--------------------|-----|
| B_TOWN | 120 |
| VILLAGE 1 | 15 |
| VILLAGE 2 | 10 |
| VILLAGE 3 | 15 |
| A_CITY Head OFFICE | 6 |

Note :

- In Villages, there are community centres, in which one room has been given as training centre to this organization to install computers.
- The organization has got financial support from the government and top IT companies.



- (i) Suggest the most appropriate location of the SERVER in the B_HUB out of the 4 locations, to get the best and effective connectivity. Justify your answer.
- (ii) Suggest the best wired medium and draw the cable layout (location to location) to efficiently connect various locations within the B_HUB.
- (iii) Which hardware device will you suggest to connect all the computers within each location of B_HUB ?
- (iv) Which service/protocol will be most helpful to conduct live interactions of Experts from Head Office and people at all locations of B_HUB ?
- (v) (A) The community is planning to link its blocks situated in various part of the same city. Which type of network out of LAN, WAN, MAN will be formed? Justify.

OR

(B) What would be your recommendation for enabling live visual communication between the Head Office at A_City and the B_Town at B_HUB from the following options:

- a) Video Conferencing
- b) Email
- c) Telephony
- d) Instant Messaging