

SAMPLE PAPER – 3

SUBJECT: COMPUTER SCIENCE

SuperNova-LearnPython, a YouTube channel dedicated to helping students to learn Python and computer science concepts.

The channel covers various topics related to computer science, including **Python programming, data file handling, computer networking, SQL** and many more.

If you're looking for video descriptions, notes, assignments, and previous years' question papers related to Python and computer science for class 11 and 12, I recommend checking out the **SuperNova-LearnPython** channel on YouTube.

[You can find the channel here¹.](#)

Happy learning! .

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SuperNova-LearnPython

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We are introducing a channel in order to help children learn skills and also imbibe the sub...more

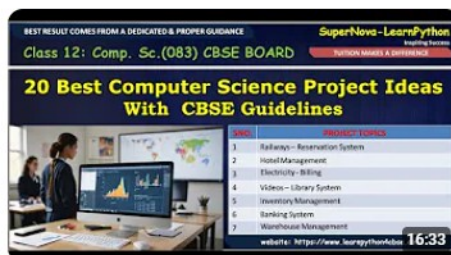
[learnpython4cbse.com](https://www.learnpython4cbse.com) and 2 more links

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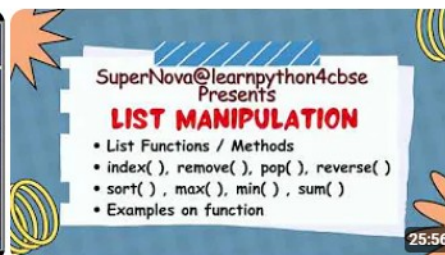
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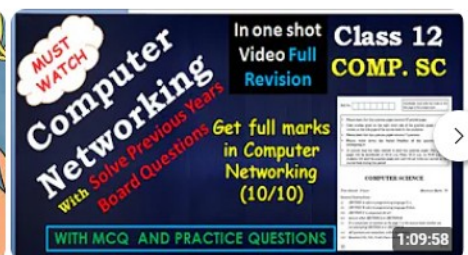
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SAMPLE PAPER – 3

Code: Learnpython4cbse-3/5(25CBSE02)

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 and False: In Python, a Syntax Error occurs when there is an error in the structure of the code.	1
2	Identify the output of the following code snippet: Lst = ['Delhi', 'Mumbai', 'Chennai', 'Kolkata'] Lst.extend(['Pune']) Lst.pop() print(Lst , end = '#') (a) ['Delhi', 'Mumbai', 'Chennai', 'Kolkata']# (b) ['Delhi', 'Mumbai', 'Chennai', 'Kolkata', 'Pune']# (c) ['Delhi#', 'Mumbai#', 'Chennai#', 'Kolkata#'] (d) ['Delhi#', 'Mumbai#', 'Chennai#', 'Kolkata#', 'Pune#']	1
3	Which of the following expressions evaluates to True? (a) print (not False and True and False and True)	1

	(II) (A) Write a statement to find the first lowest index of an element 50 from the list L2. <p style="text-align: center;">OR</p> (B) Write a statement to find the sum of all the elements from the list L1.	
25	Identify the correct output(s) of the following code. Also, write the minimum and the maximum possible values of the variable b. <pre>import random a = "Programming" b = random.randint(3 , 8) for i in range(0, b, 3): print(a[i], end='*')</pre> (a) P* (b) P*g* (c) P*g (d) P*g*m*	2
26	Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code. <pre>def change(): "HELLO"=String for I in range(0,len(String)-1) if String[I]=>"M": print (String[I],end="*") else: print String[I-1]</pre>	2
27	(I) (A) What constraint should be applied on a table column to ensure that every value in that column is unique and not NULL? <p style="text-align: center;">OR</p> (B) What constraint should be applied on a table column to ensure that every value in that column is unique, but NULL values are allowed? (II) (A) Write an SQL command to drop a Foreign Key constraint from a table named ORDERS. The constraint is named FK_CUSTOMER_ID. <p style="text-align: center;">OR</p> Write an SQL command to add a Foreign Key constraint to the ORDER table, linking the CUSTOMER_ID column to the CUSTOMERS table's ID column. Assume the constraints name	2

	should be FK_CUSTOMER_ID.	
28	Name one commonly used open source internet browser and one commonly used open source operating system. <p style="text-align: center;">OR</p> How many pair of wires is there in twisted pair cable (Ethernet)? What is the name of port, which is used to connect Ethernet cable to a computer or a laptop?	2
SECTION C		[3x3= 9 Marks]
29	(A) Write a function to count the number of lines starting with uppercase characters in a text file "Help.doc". <p style="text-align: center;">OR</p> (B) Write a function to count the number of lines starting with a digit in a text file "Diary.txt".	3
30	(A) Julie has created a dictionary containing names and marks as key value pairs of 6 students. Write a program, with separate user defined function to perform the following operations <ul style="list-style-type: none"> • Push the keys (name of the student) of the dictionary into a stack, where the corresponding values (marks) are greater than 75. • Pop and display the content of the stack. For Example If the sample content of the dictionary is as follows $R = \{ "OM":76, "JAI":45, "BOB":89, "ALI":65, "ANU":90, "TOM":82 \}$ The output from the program should be: TOM ANU BOB OM <p style="text-align: center;">OR</p> (B) Alam has a list containing 10 integers. You need to help him create a program with separate user defined functions to perform the following operations based on this list. <ul style="list-style-type: none"> • Traverse the content of the list and push the even numbers into a stack. • Pop and display the content of the stack. For Example: If the sample Content of the list is as follows: $N = [12, 13, 34, 56, 21, 79, 98, 22, 35, 38]$ Sample Output of the code should be: 38 22 98 56 34 12	3
31	Find and write the output of the following python code: <pre>def ChangeVal(M,N): for i in range(N):</pre>	3


```

        if M[i]%5 == 0:
            M[i] //= 5
        if M[i]%3 == 0:
            M[i] //= 3

L=[25,8,75,12]
ChangeVal(L,4)
for i in L :
    print(i, end='#')
    
```

OR

Find and write the output of the following python code:

```

def Call(P=40,Q=20):
    P=P+Q
    Q=P-Q
    print(P,'@',Q)
    return P

R=200
S=100
R=Call(R,S)
print (R,'@',S)
S=Call(S)
print(R,'@',S)
    
```

SECTION D

[4x4= 16 Marks]

32 Consider the following tables **Employee** and answer the questions:

4

Eid	Name	Deptid	Qualification	Sex	Points	Basic	DA	HRA	Bonus
1	Deepali	101	MCA	F	20	6000	2000	2300	200
2	Rajat	101	BCA	M	15	2000	300	300	30
3	Hari	102	B.A	M	15	1000	300	300	40
4	Harry	102	M.A	M	40	1500	390	490	30
5	Sumit	103	B.Tech	M	32	8000	900	900	80
6	Jyoti	101	M.Tech	F	12	10000	300	490	89

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

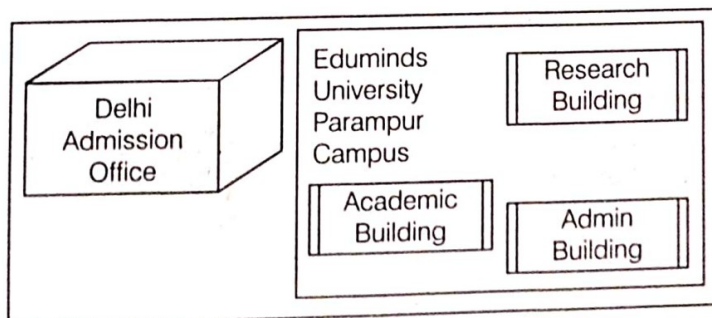
A) Write the following queries:

(I) To display the total DA for each Deptid, excluding Deptid with total DA less than 1000.

	<p>(II) To display the Employee table sorted by Qualification in ascending order.</p> <p>(III) To display the distinct Qualification names from the Employee table.</p> <p>(IV) Display the gross amount for all records with their name and date of joining. The gross amount is Basic+Da+Hra+Bonus.</p> <p style="text-align: center;">OR</p> <p>B) Write the output</p> <p>(I) Select Name, Deptid, Basic from employee where doj > '23-Sep-2000';</p> <p>(II) Select * from Employee where name not in ('Jyoti','Harry');</p> <p>(III) SELECT Eid, MIN(HRA) FROM Employee GROUP BY Deptid;</p> <p>(IV) SELECT Name, Qualification FROM Employee WHERE Qualification LIKE "__ _T%";</p>																																																																					
33	<p>Radha Shah is a Programmer, who has recently been given a task to write a python code to perform the following CSV file operations with the help of two user defined functions/modules.</p> <p>For example, a sample record of the file may be:</p> <pre>['Python Programming', 'Deitel', 500, 20]</pre> <pre>['Java Programming', 'John', 550, 10]</pre> <p>(I) CSVOpen(): to create a CSV file called BOOKS.CSV in append mode containing information of book – title, Author, Price and Qty .</p> <p>(II) CSVRead(): to display the records from the CSV file called BOOKS.CSV WHERE THE FIELD TITLE STARTS WITH 'R'.</p>	4																																																																				
34	<p>Write SQL commands for (i) to (iv) based on a table COMPANY and CUSTOMER</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <thead> <tr> <th>CID</th> <th>NAME</th> <th>CITY</th> <th>PRODUCTNAME</th> </tr> </thead> <tbody> <tr><td>111</td><td>SONY</td><td>DELHI</td><td>TV</td></tr> <tr><td>222</td><td>NOKIA</td><td>MUMBAI</td><td>MOBILE</td></tr> <tr><td>333</td><td>ONIDA</td><td>DELHI</td><td>TV</td></tr> <tr><td>444</td><td>SONY</td><td>MUMBAI</td><td>MOBILE</td></tr> <tr><td>555</td><td>BLACKBERRY</td><td>MADRAS</td><td>MOBILE</td></tr> <tr><td>666</td><td>DELL</td><td>DELHI</td><td>LAPTOP</td></tr> </tbody> </table> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <caption style="text-align: center;">TABLE : CUSTOMER</caption> <thead> <tr> <th>CUSTID</th> <th>NAME</th> <th>PRICE</th> <th>QT</th> <th>CID</th> </tr> </thead> <tbody> <tr><td>101</td><td>ROHAN SHARMA</td><td>70,000</td><td>20</td><td>222</td></tr> <tr><td>102</td><td>DEEPAK KUMAR</td><td>50,000</td><td>10</td><td>666</td></tr> <tr><td>103</td><td>MOHAN KUMAR</td><td>30,000</td><td>5</td><td>111</td></tr> <tr><td>104</td><td>SAHIL BANSAL</td><td>35,000</td><td>3</td><td>333</td></tr> <tr><td>105</td><td>NEHA SONI</td><td>25,000</td><td>7</td><td>444</td></tr> <tr><td>106</td><td>SON AL</td><td>20,000</td><td>5</td><td>333</td></tr> <tr><td>107</td><td>ARUN SINGH</td><td>50,000</td><td>15</td><td>666</td></tr> </tbody> </table>	CID	NAME	CITY	PRODUCTNAME	111	SONY	DELHI	TV	222	NOKIA	MUMBAI	MOBILE	333	ONIDA	DELHI	TV	444	SONY	MUMBAI	MOBILE	555	BLACKBERRY	MADRAS	MOBILE	666	DELL	DELHI	LAPTOP	CUSTID	NAME	PRICE	QT	CID	101	ROHAN SHARMA	70,000	20	222	102	DEEPAK KUMAR	50,000	10	666	103	MOHAN KUMAR	30,000	5	111	104	SAHIL BANSAL	35,000	3	333	105	NEHA SONI	25,000	7	444	106	SON AL	20,000	5	333	107	ARUN SINGH	50,000	15	666	4
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	(I) To display those company name which are having prize less than 30000. (II) To display the name of the companies in reverse alphabetical order. (III) To increase the prize by 1000 for those customer whose name starts with 'S'? (IV) (A) To add one more column totalprice with decimal (10,2) to the table customer. <p style="text-align: center;">OR</p> (B) To display maximum and minimum price of the customers whose Qty is greater than 10											
35	A Consider the table Defence storing details of Defence personnel as per following structure- <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="text-align: left;">Did</th> <th style="text-align: left;">Wing</th> <th style="text-align: left;">Rank</th> <th style="text-align: left;">Grade</th> <th></th> </tr> </thead> <tbody> <tr> <td>Arm01</td> <td>Army</td> <td>Major</td> <td>3</td> <td style="text-align: right;">(Sample record)</td> </tr> </tbody> </table> <p>Write the following Python function to perform the specified operation: AddAndDisplay(): To input details of Defence personnel and store it in the table Defence. The function should then retrieve and display the wing and grade of those personnel whose Rank is "Major" or "Brigadier".</p> <p>Note: Database : DefDB Host: localhost Username: root Password : Arm@2024</p>	Did	Wing	Rank	Grade		Arm01	Army	Major	3	(Sample record)	4
Did	Wing	Rank	Grade									
Arm01	Army	Major	3	(Sample record)								
SECTION E [2x5= 10 Marks]												
36	Ravi is a librarian working in a city library. He needs to manage the records of various books. For this, he wants the following information of each book to be stored: Book_ID - integer Book_Title - string Author_Name - string Price - float You, as a programmer hired by the library, have been assigned to do this job for Ravi. Suggest: (I) Write a function to input the details of a book and append it to the BINARY file 'BOOK.DAT'. (II) Write a function to update the data of books whose Price is more than 550 and change their Book_Title to "Python programming for AI". (III) Write a function to read the data from the binary file 'BOOK.DAT' and display the details of all those books whose price is greater than 500.	5										
37	Eduminds University of India is starting its campus in a small town Parampur of Central India with its centre admission office in Delhi. The university has three major buildings comprising of	5										

Admin building, Academic building and Research building in 5 km area campus.
As a network expert, you need to suggest the network plan as per (i) to (v) to the authorities keeping in mind the distances and other given parameters.



Expected wire distance between various locations:

Research Building to Admin Building	90 m
Research Building to Academic Building	80 m
Academic Building to Admin Building	15 m
Delhi Admission Office to Parampur Campus	1450 km

Expected number of computers to be installed at various locations in the university

Research Building	20
Academic Building	150
Admin Building	35
Delhi Admission Office	5

- (I) Suggest the authorities, the cable layout amongst various buildings inside the university campus for connecting the buildings.
- (II) Suggest the most suitable place (i.e. building) to house the server of this organisations with a suitable reason.
- (III) Suggest an efficient device for the following to be installed in each of the building to connect all the computers
 - (a) Gateway
 - (b) Modem
 - (c) Switch
- (IV) Suggest the most suitable (very high speed) service to provide data connectivity between admission building located in Delhi and the campus located in Parampur from the following options:
 - (a) Telephone line
 - (b) Fixedline dial-up connection
 - (c) Co-axial cable network
 - (d) GSM



(e) Leased line

(f) Satellite connection

(V) (A) University is planning to connect its campus in Delhi which is less than 100 km Which type of network will be formed?

OR

(B) Eduminds University of India is starting sports and wants to build a building on campus. Suggest the type of network that should be used to connect the other buildings on campus to the sports building.