SAMPLE PAPER – 2
SUBJECT: COMPUTER SCIENCE

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

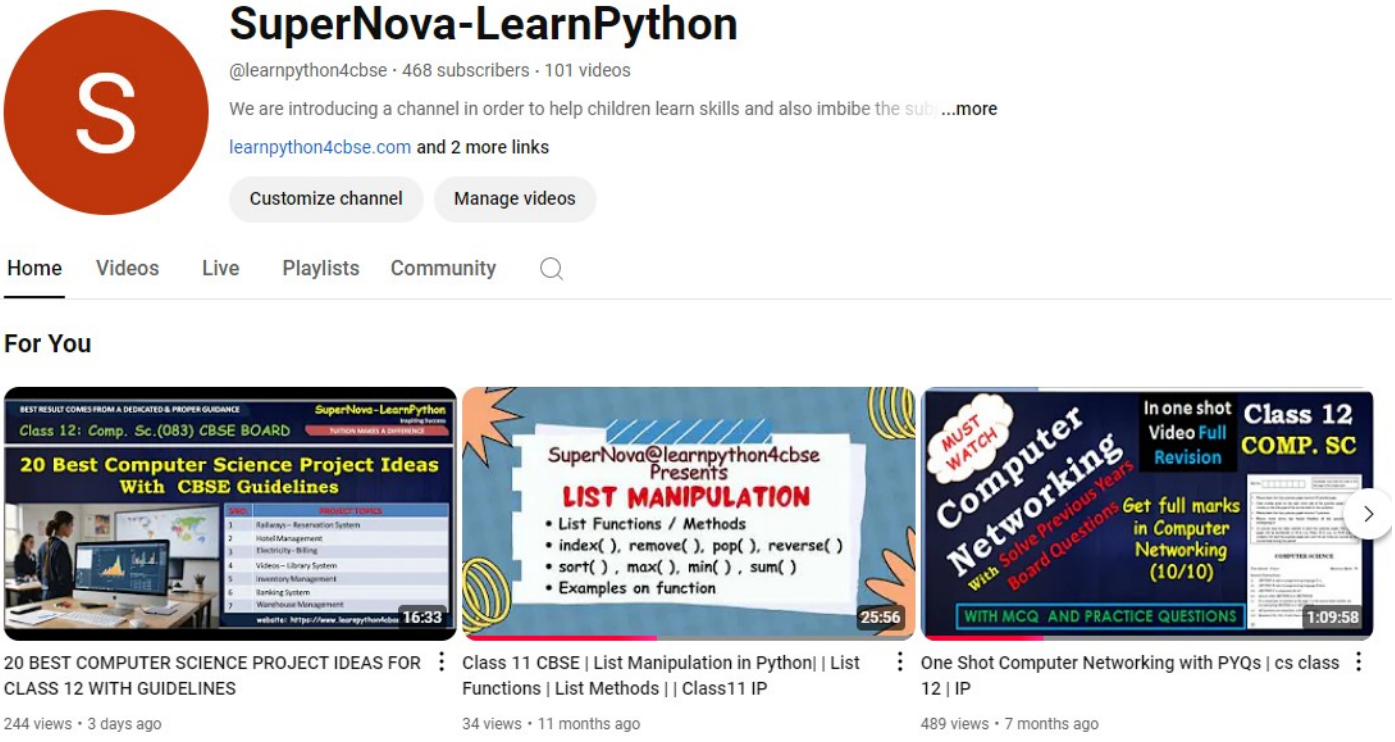
The channel covers various topics related to computer science, including ***Python programming, data file handling, computer networking***, ***SQL*** and many more.

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 here[1].

Happy learning! .

Please like, Subscribe and share the Channel



SAMPLE PAPER – 2

Code: Learnpython4cbse-2/5(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 or False. "Sorted() method sorts a list and stores the result into a new list."	**1**
2	Identify the output of the following code snippet: x = ['xy', 'yz'] for i in x: i.upper() print(x) (a) ['xy', 'yz'] (b) ['XY', 'YZ'] (c) [None, None] (d) ['Xy, 'Yz']	**1**
3	What happens when '2' = 2 is executed? (a) False (b) Ture (c) ValueError occurs (d) TypeError occurs	**1**

4	For a list L=[9,5,6,7,8], L[0:10] gives (a) [5,6,7,8] (b) Error (c) [9,5,6,7,8] (d) [9]	**1**

5	What will be the output of this statement?
	>>> str1 = "javat"
	>>> str2 =":"
	>>>str3 = "point"
	>>> str1[-l:]
		1

6	What is the output of the following code? my_list [1,2, 3, 4, 5] print(my_list[2:4]) (a) [1,2] (b)[2,3,4] (c) [3,4] (d) [2,3]	**1**
7	d ={0,1,2} for x in d: print(x) What will be the output of this statement? (a) {0, 1, 2} {0,1, 2} ({0, 1, 2} (b) 0 1 2 (c) Syntax_Error□ (d) [0,1,2]	**1**
8	What does the 'remove()' method do in Python lists? (a) Removes an element at a specific index from the list. (b) Removes the first occurrence of a specified value from the list. (c) Removes all occurrences of a specified value from the list. (d) Removes the last element from the list.	**1**
9	For a function header as follows def Calc(X, Y=20) : Which of the following function calls will give an Error? (a) Calc(15,25) (b) Calc(X=15,Y=25) (c) Calc (Y=25)□ (d) Calc(X=25)	**1**
10	Write the missing statement to complete the following code: import pickle f = open("data.dat", "rb")	**1**

	d = _____. load(f) f.close()	
11	State True or False: Syntax errors in Python occur when the parser detects an incorrect statement that prevents your code from being parsed and, therefore, run.	**1**
12	What will be the output of the following Python code? dic1 = {0: 'One' , 1:'Two', 2: 'Three'} for x, y in dic1: print(x, y) (a) 0 1 2 (b) One Two Three (c) 0 One 1 Two 2 Three (d) Error	**1**
13	Which SQL command is used to delete a table and its data from a database?	**1**
14	Which one of the following keyword is used to find out the number of values in a column? (a) TOTAL (b) COUNT (c) SUM (d) ADD	**1**
15	Which of the following is not true about SQL statements? (a) SQL statements can not be typed in lowercase or uppercase letter. SQL statements are case sensitive. (b) The statements can be typed in single line or multiple lines. (c) A semicolon (;) is used to terminate the SQL statements. (d) both (a) and (b)	**1**
16	SELECT * FROM stud ORDER BY "Rollno" ASC; (a) Display all the records of table (b) Display records in increasing order of roll number (c) Both (a) and (b) (d) Error	**1**
17	Which of the following service is a type of Internet hosting service that allows individuals and organisations to make their website accessible via the WWW? (a) Web server (b) Website (c) Web hosting (d) both (a) and (b)	**1**

18	_____is the communication protocol that sets the standard used by every computer that accesses web based information. (a) XML (b)HTML (c) HTTP (d) FTP	**1**
19	What type of switching establishes a dedicated path between the sender and receiver before transmission begins?	**1**
	Directions (Q. 20 and 21) 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 of A. (b) Both A and R are true but R is not the correct explanation of A. (c) A is true and R is false. (d) A is false and R is true.	
20	Assertion (A) Global variables are declared outside all functions. Reason (R) Global variables should be accessible to all functions, hence they are declared outside all functions.	**1**
21	Assertion (A) The ORDER BY clause sorts the result set based on one or more columns in ascending or descending order. Reason (R) The ORDER BY clause can only be applied to numeric columns.	**1**
	SECTION B **[7x2= 14 Marks]**	
22	Write a program in Python to input a sentence and create a new sentence storing each of the word in its reverse form. Example: Input: "Board exams are coming" Output: draoB smaxe era gnimoc	**2**
23	Identify the built-in function in Python which will accomplish the following task: (i) Converts a number into a hexadecimal value (ii) Returns a sequence of numbers, starting from 0 and increments by 1 (by default)	**2**
24	(I) If T1 = (5,10,15, 20, 10, 5,10, 25,...), and T2 = (100, 200, 300,...), then (A) Write a statement to count the occurrences of 10 in T1. **OR** (B) Write a statement to find the index of 25 in T1. (II)	**2**

	(A) Write a statement to concatenate all the elements of T2 at the end of T1 and store it in T3. **OR** (B) Write a statement to reverse the elements of tuple T2.	
25	What will be the output of the following code? Also, state the possible range of values for the variable b. import random a =“Success” b = random.randint(2, 5) for i in range(0, b): print(a[i], end-'-') (A) S-u-c- (B) S-u-c-c- (C) S-u-c-c-e- (D) S-u-c-c-e-s-	**2**
26	What are constraints? Which constraint can be used to create a link between two tables by the primary key of another table?	**2**
27	(I) (A) What SQL keyword is used to define a view that combines data from multiple tables? **OR** (B) Which SQL clause is used to filter records from a query based on specific conditions? (II) A) (II) (A) Write an SQL command to add a new column named Email to an existing table named Employees. The new column should allow NULL values. **OR** (B) Write an SQL command to rename an existing column OldName to NewName in a table named Departments.☐	**2**
28	(i) What is Wi-Fi communication? (ii) Give one basic difference between guided and unguided transmission channels. **OR** (i) List down the types of computer networks. (ii) What is the purpose of switch in a network?	**2**
	SECTION C **[3x3= 9 Marks]**	
29	(A) Write a Python function that writes all lines containing the word "urgent" to a new file named "UrgentLines.txt" from a text file named "Messages.txt".	**3**

	OR (B) Write a Python function that counts and displays the number of lines in a text file named "Paragraph.txt"	
30	A) Write a Python program that uses a stack to reverse a given string. The program should include the following user-defined functions: (I) push(stack, item) Pushes the item onto the stack. (II) pop(stack) Pops the topmost item from the stack and returns it. If the stack is empty, it should display "Stack is empty". (III) reverse_string(input_string) Uses the stack to reverse the input_string and returns the reversed string. **OR** B) Julie has created a dictionary conatining names and marks as key value pairs of 6 students. Write a program, with seprate user defined function to perform the following operations Push thw keys (name of the student) of the dictionary into a stack, where the corresponding values (marks) is greater than 75. Pop and display the content of the stack. For Example If the sample contanet 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	**3**
31	Consider the table LIBRARY given below. Write commands in MySQL for (i) to (iii). **TABLE: LIBRARY** (A) (i) To list the BookTitle of FND type. (ii) To display a report listing BookTitle, Type and Price in descending order of price. (iii) To count the number of BookTitle, Who have FND type. **OR**	**3**

No	BookTitle	Type	Publication	Quantity	Price
1.	Computer	FND	Galgotia	5	12
2.	Mastering C++	PROG	McGraw	10	345
3.	Windows Guide	FND	BPB	6	125
4.	Visual Basic	PROG	BPB	2	350
5.	Networking Guide	FND	Galgotia	5	235
6.	Oracle Basics	FND	BPB	4	200

(B)

(i) To insert a new row in the table LIBRARY.

7, 'Windows 8 Basics', 'FND','McGraw', 7,150.

(ii) To display the average of those Books whose type is "FND".

(iii) To count the number of books based on type.

SECTION D **[4x4= 16 Marks]**

32 Consider the table ORDERS as given below **4**

O_Id	C_Name	Product	Quantity	Price
1001	Jitendra	Laptop	1	12000
1002	Mustafa	Smartphone	2	10000
1003	Dhwani	Headphone	1	1500

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

A) Write the following queries:

(I) To display the total Quantity for each Product, excluding Products with total Quantity less than 5.

(II) To display the orders table sorted by total price in descending order.

(III) To display the distinct customer names from the Orders table.

(IV) Display the sum of Price of all the orders for which the quantity is null.

OR

B) Write the output

(I) Select c_name, sum(quantity) as total_quantity from orders group by c_name;

(II) Select * from orders where product like '%phone%';

(III) Select o_id, c_name, product, quantity, price from orders where price between 1500 and 12000;

(IV) Select max(price) from orders;

33 A CSV file "HealthSurvey.csv" contains data from a health survey. Each record in the file includes the following data: **4**

Name of a city

Total number of residents in the city

Number of people who participated in the survey

Number of people who reported having a healthy lifestyle

For example, a sample record of the file may be:

Greenfield, 7500000, 3000, 1850

Write the following Python functions to perform the specified operations on this file:

(I) Write a function to read all the data from the file and display all records, where the total number of residents is less than 2000000.

(II) Write a function to count the number of records in the file.

34 In a database, there are two tables with the instances given below: **4**

Table: STUDENTS

ADMNO	NAME	CLASS	SEC	RNO	ADDRESS	PHONE
1211	MEENA	12A	D	4	A-26	3245678
1212	VANI	10A	D	1	B-25	5456789
1213	MEENA	12B	A	1	NULL	NULL
1214	KARISH	10B	B	3	AB-234	4567890

Table: SPORTS

ADMNO	GAME	COACHNAME	GRADE
1215	CRICKET	MR.RAVI	A
1213	VOLLEYBALL	MR.AMANDEEP	B
1211	VOLLEYBALL	MR.GOVARDHAN	A
1212	BASKET BALL	MR. TEWARI	B

Write the commands for the following :

(a) To show names of students who do not have any address.

(b) To show the count of phone numbers of students.

(c) To display the game name whose coach is Ravi.

(d) (A) To display the details of SPORTS table.

OR

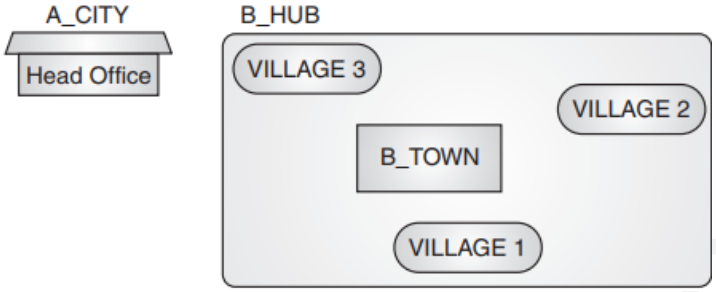
(B) To add new column name "TOURNAMENT" in SPORTS table.

35 A table, named STATIONERY, in ITEMDB database, has the following structure: **4**

Field	Type
itemNo	int(11)
itemName	varchar(15)
price	float
qty	int(11)

	Write the following Python function to perform the specified operation: AddAndDelete(): To input details of an item and store it in the table STATIONERY. The function should then retrieve and delete all records from the STATIONERY table where the ItemName is 'Pencil'. Assume the following for Python-Database connectivity: Host: localhost, User: root, Password: Pencil	
	SECTION E **[2x5= 10 Marks]**	
36	(a) What does tell() method do? (b) A Binary file "Registration.dat" exists storing details of students who have been registered for CBSE board exams. The file stores following data of students. RegnNo StudName class Noofsubjects Write a program using two functions to operate the file data. AddRegistration(): To accept more student registration data and store them to the binary file keeping the existing registration data. CountRegistrations(): To display count of registrations using the functions.	**5**

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**



Shortest distance between various	
VILLAGE 1 to B_TOWN	2 KM
VILLAGE 2 to B_TOWN	1.0 KM
VILLAGE 3 to B_TOWN	1.5 KM
VILLAGE 1 to VILLAGE 2	3.5 KM
VILLAGE 1 to VILLAGE 3	4.5 KM
VILLAGE 2 to VILLAGE 3	2.5 KM
A_CITY Head Office to B_HUB	25 KM

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