

SAMPLE PAPER – 4

SUBJECT: INFORMATICS PRACTICES

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.](#)

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

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Class 12: Comp. Sc.(083) CBSE BOARD
Class 12 COMP. SC
TOPIC: DATA FILE HANDLING
With Solve Previous Years Board Questions
✓Text File
✓Binary File
✓CSV File
Total 15 Marks
Cover Out of 40 Marks (From python)
Get full marks in Data file handling (15/15)
TIPS FOR ANNUAL EXAM FOR CLASS 12 1:11:22

MUST WATCH

Computer Networking
With Solve Previous Years Board Questions
Get full marks in Computer Networking (10/10)
WITH MCQ AND PRACTICE QUESTIONS 1:09:58

In one shot Video Full Revision

Class 12 COMP. SC
Revision Assignment-1
Class 11 IP (2023-24)
Keynotes
✓How to get 70/70
✓Solution of Sample Paper -2
✓How to attempt Error finding questions and output question
✓Tips for writing Answers
TIPS FOR ANNUAL EXAM FOR CLASS 11 12:15
Download Sample Papers: <https://www.learnpython4cbse.com/sample-papers-9>

Data file handling class 12 one shot | Data file Handling for class 12

One Shot Computer Networking with PYQs | cs class 12 | IP

Class 11 IP Revision Assignment - 1 | Class 11 Informatics Practices 2024

SAMPLE PAPER – 4

Code: Learnpython4cbse-4/5(25CBSE04)

INFORMATICS PRACTICES 12TH (CODE 065)

General Instructions:

Time: 3 Hrs.

Max. Marks: 70

- Please check 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 4 questions (29 to 32). Each question carries 3 Marks.
- Section D consists of 2 case study type questions (33 to 34). Each question carries 4 Marks.
- Section E consists of 3 questions (35 to 37). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.
- In case of MCO, text of the correct answer should also be written.

SECTION A

[21x1= 21]

1	State whether the following statement is True or False: You can create a Pandas Series using a Python dictionary.	1
2	Which clause is used with aggregate functions? (a) GROUP BY (b) SELECT (c) WHERE (d) Both (a) and (b)	1
3	Which of the following devices connects two dissimilar networks? (a) Router (b) NIC (c) Gateway (d) Switch	1
4	Which of the following is an example of single row function? (a) SUM (b) CONCAT (c) AVG (d) COUNT	1
5	E-waste is harmful to the environment and human health if not properly treated or disposed of, therefore they must be handled with care. What are the health hazards which can be caused by E-waste?	1

Learnpython4cbse

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INFORMATICS PRAC.

SAMPLE PAPERS

PYTHON MCQs

	(a) Lung cancer (c) Brain damage	(b) DNA damage (d) All of these	
6	To display the 3rd, 4th and 5th columns from 6th to 9th rows of a DataFrame df, you can write (a) df.loc [3 : 5, 6 : 9] (c) df.loc [6 : 9, 3 : 5]	(b) df.iloc [3 : 5, 6 : 9] (d) df.iloc [6 : 10, 3 : 6]	1
7	In Matplotlib, what does the xticksf) function do? (a) Set the x-axis ticks (c) Set tick labels	(b) Set the y-axis ticks (d) Set the tick locations	1
8	State whether the following statement is True or False: The IN operator in SQL is used to check if a value exists within a specified range of values.		1
9	The axis 0 identifies a DataFrames. (a) rows (c) values	(b) columns (d) datatype	1
10	Which of the following are medium of cyber trolling? (a) Facebook (c) Youtube video comments	(b) Twitter (d) All of these	1
11	Fill in the Blank: The clause in SQL is used to group rows that have the same values into summary rows. (a) GROUP BY (c) HAVING	(b) ORDER BY (d) WHERE	1
12	Which of the following topologies needs least cable length? (a) Star (c) Bus	(b) Tree (d) None of these	1
13	Given a Pandas series called Orders, the command which will display the first 3 rows is (a) print(Orders.HEAD(3)) (c) print(Orders.heads(3))	(b) print(Orders.Head(3)) (d) print(Orders.head(3))	1
14	In FOSS, source code is hidden from (a) All users (c) Only the vendor	(b) Purchaser (d) In FOSS, source code is not hidden	1
15	What is the output of df.shape where df is a pandas DataFrame? (a) The number of rows and columns (c) The column names	(b) The data types of each column (d) The index values of the DataFrame	1

21	Assertion (A) In SQL, the HAVING clause is used to filter records after grouping has been applied. Reason (R) The HAVING clause is used to specify conditions on aggregated data after the GROUP BY clause.	1
SECTION B [7x2= 14]		
22	What are the differences between a Series and a DataFrame? OR Write a program to create a series from dictionary that stores classes (6,7,8,9,10) as keys and number of students as values.	2
23	What do you mean by Identity theft? Explain with the help of an example.	2
24	If there are 10 rows in 'Emp' table and 5 rows in 'Department' table, How many rows will be displayed by the following query? SELECT * FROM Emp, Department: Write the term used for the Join being used on the two tables mentioned above.	2
25	Expand the following terms related to computer networks: (i) HTTP (ii) NNTP (iii) ISP (iv) TCP/IP OR What is the difference between star topology and bus topology of network?	2
26	Write names of any two aggregate functions and one example of each.	2
27	What do you understand by Net Etiquettes? Explain any two such etiquettes.	2
28	The Python code written below has syntactical errors. Rewrite the correct code and underline the corrections made. import Pandas as Pd data = {'Name': ['Alice', 'Bob', 'Charlie'], 'Age': [25, 30, 22]} df = pd.DataFrame(data) result = [df['Age'] > 25] Print(result) OR Complete the given Python code: to concatenate DataFrames 'df1' and 'df2' vertically (along rows) using Pandas. import _____ as pd df1=pd.DataFrame({ 'A':[1, 2, 3], 'B': [4, 5, 6]})	2

```
df2=pd.DataFrame({'A' : [7, 8, 9], 'B': [10, 11, 12]})
result_df = pd._____([_____._____._____])
print(result_df)
```

SECTION C

[4x3= 12]

- 29** Ravi has been receiving threatening messages from an anonymous user on social media. I these messages have started affecting his mental health and daily life The user also posts harmful comments about Ravi, spreading false information.
- (i) What is happening to Ravi?
- (ii) What steps should Ravi take to address the cyberbullying?
- (iii) What legal recourse does Ravi have under Indian law?
- 3**

- 30** Write the code in Pandas to create the following DataFrame.
- | | Name | Subject | Marks |
|---|-------------|----------------|--------------|
| 1 | Abhi | Mathematics | 46 |
| 2 | Vanshika | Science | 76 |
| 3 | Riva | Science | 70 |
| 4 | Chirag | Mathematics | 82 |
| 5 | Tushar | Commerce | 72 |
| 6 | Khushal | Physical | 80 |
| 7 | Mahi | Art | 78 |
- OR**
- Write a Python program to create a Pandas Series as GI_tag as shown below using a dictionary. Note that the left column indicates that indices and the right column displays the data.
- | | | |
|----------------------|-------------|-----------------|
| Kashmir Saffron | Agriculture | Jammu & Kashmir |
| Manipuri Black Rice | Food Stuff | Manipur |
| Kandangi Saree | Handicraft | Tamil Nadu |
| Kalpi Handmade Paper | Handicraft | Uttar Pradesh |
- 3**

- 31** Based on table EMPLOYEE given here, write suitable SQL queries for the following:
- | Emp No | Name | Design | Gen | City | Salary |
|---------------|-------------|---------------|------------|-------------|---------------|
| 1. | Anushka | Manager | M | Raipur | 89430 |
| 2. | Vandana | HR | M | Durg | 76460 |
| 3. | Vibha | Sales | F | Agra | 63470 |
| 4. | Dhrishti | HR | F | BBSR | 75492 |
- 3**

5.	Bhoomi	Manager	M	Delhi	87360
6.	Aditi	Sales	F	NULL	68256
7.	Monika	Engineer	I	\tVMW	83324
8.	I'riyanslu	1 .nginwr	St	M\MJTV	84429

- (a) Display total of salary gender wise.
- (b) Display number of city excluding NULI value, gender wise.
- (c) Displlay maximum salary of the employee Design wise.

32 Consider the following tables CONSIGNOR and CONSIGNEE. Write SQL commands for the statements (i) to (iii).

3

Table : CONSIGNOR

CnorID	CnorName	CnorAddress	City
ND01	R Singhal	24, ABC Enclave	New Delhi
ND02	Amit Kumar	123, Palm Avenue	New Delhi
MU15	R Kohli	5/A, South Street	Mumbai
MU50	S Kaur	27-K, VVestened	Mumbai

Table : CONSIGNEE

CneelD	CnorID	CneeName	CneeAddress	CneeCity
MU05	ND01	Rahul Kishore	5, Park Avenue	Mumbai
ND05	ND02	P Dhingra	16/J Moore Enclave	New Delhi
KU19	MUI 5	AP Sharma	2A, Central Avenue	Kolkata
MU32	ND02	S Mittal	P245, AB Colony	Mumbai
ND48	MU50	BP Jain	13, Block D, Avihar	New Delhi

- (i) To display the names of all consignors from Mumbai.
- (ii) To display the CneelD, CneeName, CneeAddress of all consignee from New Delhi.
- (iii) To display consignee details in ascending order of CneeName.

OR

Consider the following tables ACTIVITY and COACH:

Table : ACTIVITY

A Code	Activity Name	Stadium	Participants Num	Prize Money	Schedule
1001	Relay 100x4	Star Annex	16	10000	23-Jan -2004
1002	High Jump	Star Annex	10	12000	12- Dec -2003

1003	Short Put	Super Power	12	8000	14- Feb -2004
1005	Long Jump	Star Annex	12	9000	01- Jan -2004
1008	Discuss Throw	Supet Power	10	15000	19- Mar -2004

Table : COACH

P Code	Name	A Code
1	Ahmad Hussain	1001
2	Ravindar	1008
3	Janila	1001
4	Naaz	1003

Write SQL commands for the following statements:

1. To display the names of all activities with their Acodes in descending order.
2. To display sum of PrizeMoney for the Activities played in each of the Stadium separately.
3. To display the content of the Activity table whose schedule date earlier than 01-01-2004 in ascending order of Participants Num.

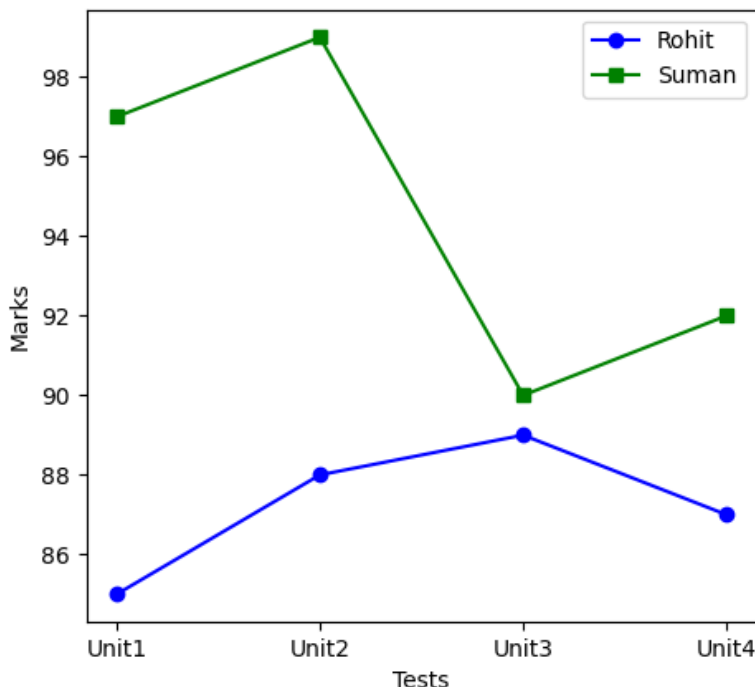
SECTION D

[2x4= 8]

33 The table below shows the Marks of two students for the four unit tests for academic session 2019-2020. Student has to fill in the blank in a Python program that generates a line graph with Test Names on the X axis and Marks on the Y axis.

Tests	Rohit	Suman
Unit 1	85	97
Unit 2	88	99
Unit 3	89	90
Unit 4	87	92

Marks of Rohit and Suman for Unit Tests (2019-2020)



4


```

import _____ as plt #Statement-1
tests = ['Unit1', 'Unit2', 'Unit3', 'Unit4']
rohit_marks = [85, 88, 89, 87]
suman_marks = [97, 99, 90, 92]
plt.plot(tests, rohit_marks, marker='o', label='Rohit', color='blue')
plt.plot(_____, suman_marks, marker='s', label='Suman', color='green') #Statement-2
plt.title('Marks of Rohit and Suman for Unit Tests (2019-2020)')
plt.xlabel('Tests')
plt.ylabel(_____) #Statement-3
plt._____
plt.show() #Statement-4
    
```

I. Write the suitable code for the import statement in the blank space in the line marked as Statement-1.

II. Refer to the graph shown above and fill in the blank in Statement-2 with suitable Python code.

III. Fill in the blank in Statement-3 with the name of the function to set the label on the y-axis.

IV. Refer the graph shown above and fill the blank in Statement-4 with suitable code.

34 Consider the table SHOPEE given below. Write commands in MySQL for (i) to (iv).

4

TABLE : SHOPEE

Scode	Pname	Supname	Qty	City	Price
102	Biscuit	Hide and Seek	100	Delhi	10.00
103	Jam	Kissan	110	Kolkata	25.00
101	Coffee	Nestle	200	Kolkata	55.00
106	Sauce	Maggi	56	Mumbai	55.00
107	Cake	Britania	72	Delhi	10.00
104	Maggi	Nestle	150	Mumbai	10.00
105	Chocolate	Cadbury	170	Delhi	25.00

(i) To display names of the product, whose name starts with 'C' in ascending order of Price

(ii) To display code, product name and City of the products whose quantity is less than 100.

(iii) To count distinct Company in the table.

(iv) To insert a new row in the table SHOPEE

110, 'Pizza'. 'Papa Jones', 120, 'Kolkata', 50.00

OR

Consider the table STUDENTS given below. Write the output for (i) to (iv)

Table STUDENT

No	Student Name	Class	Strea—	Score	Grade
1.	Divakar	IX	Science	398	A

2.	Divya	X	Commerce	397	A
3.	Dinkar	IX	Humanities	376	B
4.	Dinesh	X	Sdence	330	C
5.	Dinanath	IX	Science	376	B
6.	Dinmani	X	Commerce	370	B

- (i) SELECT StudentName, Stream FROM STUDENTS WHERE Score >380;
- (ii) SELECT COUNT (DISTICT Stream) FROM STUDENTS;
- (iii) SELECT StudentName, Class FROM STUDENTS WHERE Grade = A';
- (iv) SELECT StudentName, Class, Score FROM STUDENTS WHERE Score<=350;

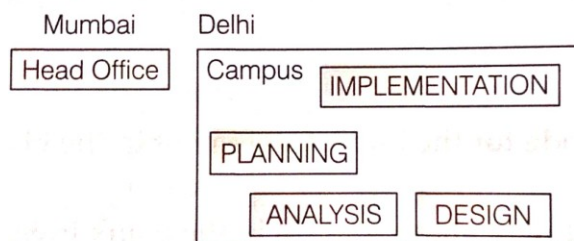
SECTION E

[3x5= 15]

35 Ideal IT Service Ltd is a software development organisation. It is planning to set Indian campus at **5**

Delhi with its head office at Mumbai. The Delhi campus has 4 buildings PLANNING, ANALYSIS, DESIGN and IMPLEMENTATION.

You as a network expert have to suggest the best network related solution for their problem raised in (i) to (v), keeping in the mind the distance between the building and other given parameter.



Shortest distance between various buildings

PLANNING to IMPLEMENTATION	65
PLANNING to DESIGN	100
PLANNING to ANALYSIS	60
IMPLEMENTATION to DESIGN	65
IMPLEMENTATION to ANALYSIS	60
ANALYSIS to DESIGN	55
Mumbai Head Office to Delhi Campus.	1725 km.

Number of computers installed at various buildings are as follows:

PLANNING	130
IMPLEMENTATION	85
DESIGN	50
ANALYSIS	22
Mumbai Head office	30

- (i) Suggest the most appropriate location of the server inside the Delhi campus (out of the 4 buildings), to get best connectivity for maximum number of computers, justify your answer.
- (ii) Suggest and draw the cable layout to efficiently connect various buildings within the Delhi campus for connecting the computers.



- (iii) Which hardware device will you suggest to be procured by the company to be installed to protect and control the Internet uses within the campus?
- (iv) Which of the following communication media, will you suggest to be installed for connecting their Delhi campus for very effective (High speed) communication?
- (a) Telephone line (b) Optical fibre in building network?
- (c) Ethernet cable. (d) What is the use of firewall

36 Consider the DataFrame df2 shown below.

5

EmployeeID	Name	Department	Salary
0	John Smith	HR	50000
1	Jane Doe	IT	60000
2	Alice Johnson	Finance	70000
3	Bob Brown	IT	65000
4	Emily Davis	HR	52000

Write Python statements for the DataFrame df2 to:

- (i) Print the first two rows of the DataFrame df2.
- (ii) Display the 'Department' of all employees.
- (iii) Remove the column 'Salary'.
- (iv) Display the data of the 'Name' column from indexes 2 to 4 (both included).
- (v) Rename the column 'Name' to 'Employee Name'.

37 Write suitable SQL query for the following:

5

- (i) To display the total number of orders in the Orders table.
- (ii) To display the last four characters of the useridcolumn (attribute) in the Users table. (Note: The user IDs are stored in the format U123-4567)
- (iii) To display the data from the column (attribute) address in the Clients table, after eliminating any leading and trailing spaces.
- (iv) To display the minimum value in the cost column (attribute) of the Sendees table. k
- (v) To determine the count of rows where the status is 'Active' in the Accounts table.

OR

Write suitable SQL query for the following:

- (i) To display the name of the month for the current date.
- (ii) To display the leftmost 5 characters from the string "INFORMATICS PRACTICES".
- (iii) To display the position of first occurrence of 'Pub' in the string Tagore Public School
- (iv) To display the column NAME in uppercase from table STUDENT.
- (v) To compute the remainder of 120 and 7 using SQL function.