

Marking Scheme link is given at every page.

# **SAMPLE PAPERS** **CBSE EXAM 2025**



**20 Sets**

**Class : 12th**

**Sub : Information Praticce**

**How to see answers or marking scheme ?**

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**Sample Paper 01**  
**INFORMATICS PRACTICES (065)**  
**CLASS XII 2024-25**

**Time: 3 Hours**

**Max. Marks: 70**

**General Instructions:**

1. Please check 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 4 questions (29 to 32). Each question carries 3 Marks.
  7. Section D consists of 2 case study type questions (33 to 34). Each question carries 4 Marks.
  8. Section E consists of 3 questions (35 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**

1. State whether the following statement is True or False:  
In Pandas, `.head()` returns the last five rows of a Data Frame by default.
2. Which argument of `bar()` lets you set the thickness of bar?  
(a) thick (b) thickness  
(c) width (d) size
3. Which of the following are medium of cyber trolling?  
(a) Facebook (b) Twitter  
(c) Youtube video comments (d) All of these
4. The axis 0 identifies a Data Frame's \_\_\_\_\_.  
(a) rows (b) columns  
(c) values (d) datatype
5. Find the output of the following SQL command.  
`SELECT POWER (6, 6) ;`  
(a) 625 (b) 46656  
(c) 36 (d) 3125
6. A fraudulent process that extracts money from an ignorant person is called \_\_\_\_\_.  
(a) Spamming (b) Phishing  
(c) Scam (d) None of these

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7. The term Intellectual property rights cover \_\_\_\_\_.
- (a) Trademark (b) Copyright  
(c) Patents (d) All of these
8. State whether the following statement is True or False:  
In SQL, the `DISTINCT` keyword removes duplicate rows from the result set of a query.
9. In FOSS, source code is hidden from
- (a) All users (b) Purchaser  
(c) Only the vendor (d) In FOSS, source code is not hidden
10. \_\_\_\_\_ is not a network device.
- (a) Router (b) Gateway  
(c) Bridge (d) Mesh
11. \_\_\_\_\_ is not a browser.
- (a) Mozilla Firefox (b) Google Chrome  
(c) Internet Explorer (d) Yahoo
12. The return type of DAYOFMONTH function is \_\_\_\_\_.
- (a) char (b) String  
(c) integer (d) date
13. 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]` (b) `df.iloc [3 : 5, 6 : 9]`  
(c) `df.loc [6 : 9, 3 : 5]` (d) `df.iloc [6 : 10, 3 : 6]`
14. Choose the correct statement to display FCode, Name and Price of items that have price less than ₹ 5000 from table Furniture.
- (a) `SELECT FCode, Name, Price FROM Furniture WHERE Price > 5000;`  
(b) `SELECT FCode, Name, Price FROM Furniture WHERE Price < = 5000;`  
(c) `SELECT FCode, Name, Price FROM Furniture WHERE Price < 5000;`  
(d) `SELECT * FROM Furniture WHERE Price < 5000;`
15. The default date format is
- (a) MM-DD-YYYY (b) YYYY-MM-DD  
(c) DD-MM-YYYY (d) None of these
16. Match the following SQL functions with their purposes:

SQL Funtion		Description	
P	AVG()	1.	Calculate the average value of a column.
Q	COUNT()	2.	Returns the minimum value in a column.
R	MIN()	3.	Counts the number of rows.
S	SUM()	4.	Calculates the total of a column.



- (a) P-1, Q-3, R-2, S-4  
(c) P-4, Q-3, R-2, S-1
- (b) P-2, Q-3, R-1, S-4  
(d) P-2, Q-3, R-1, S-4

17. Which of the following are health disorders caused by overuse of technology?

- (a) DNA damage  
(c) Damage to heart, liver and spleen
- (b) Lung cancer  
(d) All of these

18. Which of the following is an example of single row function?

- (a) SUM  
(c) AVG
- (b) CONCAT  
(d) COUNT

19. Which clause is used with aggregate functions?

- (a) GROUP BY  
(c) WHERE
- (b) SELECT  
(d) Both (a) and (b)

**Directions (Q.Nos. 20-21) Assertion and Reason based Questions.**

20. **Assertion (A)** : A Series is a one-dimensional array containing a sequence of values of any data type (int, float, list, string, etc).

**Reason (R)** : Pandas Series can be imagined as a column in a spreadsheet.

- (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 but R is false.  
(d) A is false but R is true.

21. **Assertion (A)** : A router is a network device that connects multiple networks together.

**Reason (R)** : Routers operate at the network layer (Layer 3) of the OSI model and can forward data packets based on their IP addresses.

- (a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true and R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.

## SECTION B

22. Write any two points of difference between LAN, MAN, and WAN.

or

What is a home page? Mention two advantages of a home page.

23. Meenakshi , a travel agent, has stored passenger data in a table named Travel with columns (Pno, Pname, Tdate, Km, Coach). She wants to use a command to count the number of passengers grouped by each coach type in the Travel table.

```
SELECT PName, COUNT(Coach) FROM Travel ORDER BY Coach;
```

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But she is not getting the desired result.

Help her for identifying the reason of the error and write the correct query by suggesting the possible correction(s).

24. State differences between date functions NOW( ) and DAY( ) of MySQL.
25. The following Python code contains syntax errors. Rewrite it in correct form, underlining the corrections made.

```
import Pandas as pd
data = {'A': 1, 'B': 2, 'C': 3}
my_series = Pd.Series(data)
print(my_series)
```

26. Write the output of the given code.

```
import pandas as pd
S1=pd.Series([5,6,7,8,10],
index=(['v', 'w', 'x', 'y', 'z'])
l=[2,6,1,4,6]
S2=pd.Series(l, index=['z', 'y',
'a', 'w', 'v'])
print(S1 - S2)
```

27. What are digital property rights? List some examples of digital property rights.
28. Complete the given Python code to given two DataFrames 'df1' and 'df2', merge them on the 'ID' column to get a single DataFrame 'merged\_df'.

```
import _____ as pd
df1 = pd.DataFrame({'ID': [1, 2, 3],
'Name' : ['Riya', 'Preeti', 'Neeta']})
df2 = pd.DataFrame({'ID': [1, 2, 4],
'Age': [25, 30, 22]})
merged_df = pd.merge(df1, df2, on
=_____ )
print(merged_df)
```

## SECTION C

29. "The event in-charge at a school received a suggestion from one of the students to use Python Pandas for data analysis and Matplotlib for data visualization. She then created a DataFrame named 'df' to track the number of First, Second, and Third prizes won by different houses across various events."

	House	First	Second	Third
0	Chenab	5	7	6
1	Gangas	10	5	4
2	Jamuna	8	13	15
3	Jhelum	12	9	12
4	Ravi	5	11	10
5	Satluj	10	5	3

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Help her to write Python commands to do the following questions:

- (i) Display the House names where the number of Second prize are in the range of 12 to 20.
- (ii) Display all the records in the reverse order.
- (iii) Display the bottom 3 records.

30. Mr. Rajat works as a data analyst in an organization, where he utilizes Python Pandas and Matplotlib for his tasks. He received a dataset of passenger information covering January, March, and December from the years 2021 to 2023.

	Year	Month	Passengers
0	2021	Jan	25
1	2021	Mar	50
2	2023	Jan	35
3	2021	Dec	55
4	2023	Dec	65

Help him to write the Python code to create the above DataFrame.

31. "Class XII students have access to the school's Wi-Fi network. The network security team, responsible for managing a registered URL 'schoolwifi.edu,' sent emails to all students on 17th September 2017, informing them about the expiry of their passwords. Students were instructed to renew their passwords within 24 hours by clicking on the provided URL."

On the bases of the above information, answer the questions:

- (i) Identify the name of cyber crime which is done by given information.
- (ii) Ideally, what characters should be used in a password to make it strong?
- (iii) What are unsolicited E-mails called as?

or

Explain the features of IT Act 2000.

32. Consider the following table Bookhouse.

Table : Bookhouse						
No	Title	Author	Subject	Publisher	Qty	Price
1	Data Structure	Lips Chute	DS	McGraw	4	217.00
2	DOS Guide	Nortron	OS	PHI	3	175.00
3	Turbo C++	Robert Lafore	Prog	Galgotia	5	270.00
4	Dbase Dummies	Palmer	DBMS	PustakM	7	130.00
5	Mastering Windows	Cowart	OS	BPB	1	225.00
6	Computer Studies	French	FND	Galgotia	2	75.00
7	COBOL	Stern	Prog	John W	4	1000.00
8	Guide Network	Freed	NET	Zpress	3	200.00
9	Basic for Beginners	Norton	Prog	BPB	3	40.00
10	Advanced Pascal	Schildt	Prog	McGraw	4	350.00

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Write the SQL statements for the following

- (i) Display number of books and average Price for each type of Publisher.
- (ii) Display Title, Price in descending order of Price.
- (iii) Display total number of books available in stock published by BPB.

or

Differentiate between COUNT( ) and COUNT (DISTINCT) functions. Explain with the help of example.

## SECTION - D

33. Naman has created the following DataFrame “Climate” to record the data about climatic conditions of four years:

Year	Max Temp	Min Temp	Rainfall
2017	32	20	123
2018	33	22	140
2019	35	21	135
2020	34	23	160

- (a) What will be the output of the following?
  - (i) `Climate.iloc[1:3, 1:2]`
  - (ii) `print(Climate.head(2))`
- (b) Write the Python code to display the temperature difference between MaxTemp and MinTemp for all the rows in the DataFrame Climate.
- (c) List 1st, 2nd and 3rd rows.

or (Option for part (c) only)

The exact number of values in each column of the DataFrame?

34. Consider the table Sports given below. Write commands in SQL for the following:

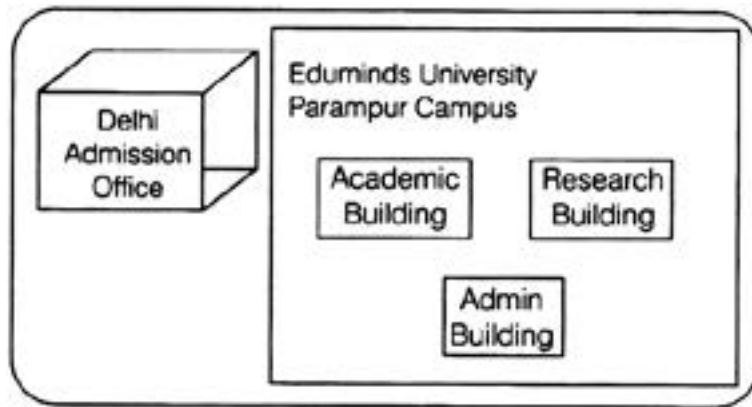
Table : Sports						
StudentNo	Class	Name	Game1	Grade	Game2	Grade2
10	7	Sammer	Cricket	B	Swimming	A
11	8	Sujit	Tennis	A	Skating	C
12	7	Kamal	Swimming	B	Football	B
13	7	Venna	Tennis	C	Tennis	A
14	9	Archana	Basketball	A	Cricket	A
15	10	Arpit	Cricket	A	Athletics	C

- (i) Display the names of the students who have grade ‘A’ in either Game1 or Game2 or both.
- (ii) Display the number of students having game ‘Cricket’.
- (iii) Display the names of students who have same game for both Game1 and Game2.
- (iv) Display the highest class of the students who has opted for swimming as Game1 or Game2.



## SECTION E

35. Eduminds University of India is starting its first campus in a small town Parampur of central India with its centre admission office in Delhi. The university has three major buildings comprising of Admin Building, Academic Building and Research Building in the 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 distances 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 are as follows:

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

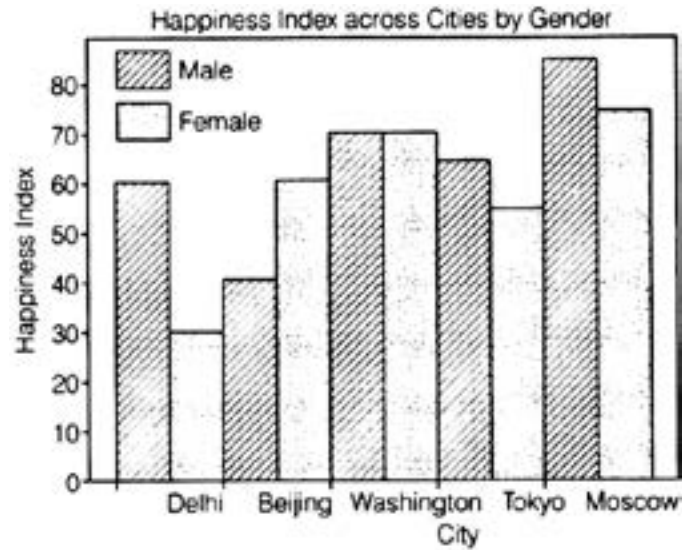
- (i) Suggest the authorities, the cable layout amongst various buildings inside the university campus for connecting the building.
- (ii) Suggest the most suitable place (i.e. building) to house the server of this organisation, with a suitable reason.
- (iii) Suggest an efficient device to be installed in each of the buildings to connect all computers.
- (iv) University is planning to provide online facility to students for clearing their doubts. Which of the following is the online textual or multimedia conversation will they use?
  - (a) VoIP
  - (b) Chatting
  - (c) HTML
  - (d) None of these
- (v) Which software will students use to connect to Internet, create websites and view sites on web?

Continue on next page.....

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36. Write the Python code to create a plot as given below:



or

Draw the approximate graph which display the multiline in same plot.

```
import matplotlib.pyplot as plt
x1 = [10,20,40]
y1 = [20,50,10]
plt.plot(x1, y1, label = "line 1")
x2 = [10,20,30]
y2 = [40,10,20]
plt.plot(x2, y2, label = "line 2")
plt.xlabel('X - axis')
plt.ylabel('Y - axis')
plt.title('Multiline')
plt.legend()
plt.show()
```

37. Write the output of following queries.

- (i) `SELECT POWER(9, 3);`
- (ii) `SELECT MID('SHUCHI GOYAL', 8,5);`
- (iii) `SELECT RIGHT('Dushyant', 5);`
- (iv) `SELECT INSTR('SQL FUNCTIONS', 'C');`
- (v) `SELECT LEFT('Nodia', 2);`

or

Consider the following table CLUB.

Table : CLUB					
COAC H_ID	COACH NAME	AGE	SPORTS	Date_of_Joining	PAY
1	Rajesh	30	Karate	1999-08-25	1000
2	Anuj	35	Swimming	2000-01-05	750

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3	Shuchi	25	Basketball	2005-01-04	1200
4	Reetika	28	Badminton	2002-08-25	1400
5	Virendra	32	Cricket	1996-05-17	1500

Give the answer of the following questions on the basis of the above table.

(i) Write a query to display the substring of 4 characters of the name of each coach, starting from second character, with their age.

(ii) What will be the output of the following query?

```
mysql>SELECT CONCAT (COACHNAME,  
AGE) FROM CLUB WHERE AGE> 30;
```

(iii) Write a query to display the day for the Date\_of Joining column.

(iv) What will be the output of the following query?

```
mysql>SELECT PAY *0.25 + 1000  
FROM CLUB  
WHERE COACHNAME LIKE 'R%';
```

(v) Write a query to display 3 characters from left of coach name.

**END**

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**Sample Paper 02**  
**INFORMATICS PRACTICES (065)**  
**CLASS XII 2024-25**

**Time: 3 Hours**

**Max. Marks: 70**

**General Instructions:**

1. Please check 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 4 questions (29 to 32). Each question carries 3 Marks.
  7. Section D consists of 2 case study type questions (33 to 34). Each question carries 4 Marks.
  8. Section E consists of 3 questions (35 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**

1. State whether the following statement is True or False: The `.tail()` method in Pandas retrieves the last few rows of a DataFrame.
2. The term plagiarism is not related to \_\_\_\_\_.  
(a) illegal software copy                      (b) illegal use of patents  
(c) stealing others E-mail password              (d) None of these
3. \_\_\_\_\_ is a set of moral principles that governs the behaviour of a group or an individual and regulates the use of computers.  
(a) Copyright                                      (b) Computer ethics  
(c) Property rights                                  (d) Privacy law
4. The columns of DataFrame can be  
(a) heterogeneous                                  (b) homogeneous  
(c) Both (a) and (b)                                  (d) None of these
5. The term e-Waste can also be called as \_\_\_\_\_.  
(a) WEEE    (b) WEST  
(c) WET    (d) None of these
6. Code of the software will be protected by  
(a) copyright    (b) patent  
(c) registered trademark                              (d) None of these

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7. Which of the following is not an aggregate function?  
(a) AVG() (b) ADD()  
(c) MAX() (d) COUNT()
8. State whether the following statement is True or False:  
The `LIKE` operator in SQL can be used only with numeric data types.
9. Pandas is a \_\_\_\_\_.  
(a) package (b) language  
(c) library (d) software
10. The module that is required to create a Series is  
(a) matplotlib (b) pyplot  
(c) pandas (d) random
11. With the Internet help we can do \_\_\_\_\_.  
(a) Exchange information with friends and colleagues.  
(b) Access pictures, sounds, video clips and other media elements.  
(c) Find diverse perspective on issues from a global audience.  
(d) Exchange information, access pictures, find diverse perspective on issue from a global audience.
12. Which of the following is a valid SQL statement?  
(a) `SELECT MIN(pub_date) FROM books GROUP BY category HAVING pub_id = 4;`  
(b) `SELECT MIN(pub_date) FROM books ORDER BY category = 'COOKING';`  
(c) `SELECT COUNT(*) FROM orders WHERE customer# = 1005;`  
(d) `SELECT MAX(COUNT(customer#)) FROM orders GROUP BY customer#;`
13. Home page helps viewers to find out what they can find on the particular site. Home page is the \_\_\_\_\_.  
(a) first page of a website (c) about page  
(b) index page (d) None of these
14. Which of the following is an open source license?  
(a) GNU (b) BSD  
(c) Apache (d) All of these
15. What is the meaning of "GROUP BY" clause in MySQL?  
(a) Group data by column values (b) Group data by row values  
(c) Group data by column and row values (d) None of these

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16. Match the following SQL functions with their purposes:

SQL Funtion		Description	
P	DISTINCT	1.	Groups rows based on a specific condition
Q	LIMIT	2.	Restricts the result to a certain number of rows..
R	ORDER BY	3.	Removes duplicate rows in the result.
S	GROUP BY	4.	Sorts the rows in ascending or descending order.

(a) P-3, Q-2, R-4, S-1

(b) P-2, Q-3, R-1, S-4

(c) P-4, Q-3, R-2, S-1

(d) P-2, Q-3, R-1, S-4

17. Find odd one out.

(a) GROUP BY

(b) DESC

(c) ASC

(d) ORDER BY

18. If emp\_id contain the following set {9, 7, 6, 4, 3, 1, 2}, what will be the output on execution of the following MySQL statement?

```
SELECT emp_id
```

```
FROM person ORDER BY emp_id;
```

(a) {1, 2, 3, 4, 6, 7, 9}

(b) {2, 1, 4, 3, 7, 9, 6}

(c) {9, 7, 6, 4, 3, 1, 2}

(d) None of these

19. Identify the correct INSERT queries from the following :

(a) INSERT INTO Persons ('xxx1', 'yyy1');

(b) INSERT INTO Persons (LastName, FirstName) Value ('xxx', 'yyy');

(c) INSERT INTO Persons Values ('xxx1', 'yyy1');

(d) INSERT INTO Persons Value ('xxx1', 'yyy1');

**Directions (Q.Nos. 20-21) Assertion and Reason based Questions.**

20. **Assertion (A)** : The name Bluetooth is derived from Harald Bluetooth, a king in Denmark.

**Reason (R)** : Bluetooth is used for exchanging data over a short distance from fixed and mobile devices.

(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 and R is true.

21. **Assertion (A)** : Pandas is an open-source Python library which offers high performance, easy to use data structures and data analysis tools.

**Reason (R)** : Professionals and developers are using the Pandas library in data science and machine learning.

(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 but R is false.

(d) A is false but R is true.

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## SECTION B

22. What are some factors that have contributed to the rise of cyber crimes?
23. What is the purpose of ORDER BY clause in SQL? Explain with the help of suitable example.

24. Carefully observe the following code:

```
import pandas as pd
One={'P':5000, 'Q':8000, 'R':12000,
      'S': 18000}
Two={'A':13000, 'B':14000, 'C':12000}
totSales={1:One, 2:Two}
df=pd.DataFrame(totSales)
print(df)
```

Answer the following:

- (i) List the index of the DataFrame df
- (ii) List the column names of DataFrame df.
25. List some benefits of networking. Name any two components required for networking.

or

Give an example of each static web page and dynamic web page.

26. The Python code written below has syntactical errors. Rewrite the correct code and underline the corrections made.

```
Import pandas as pd
Emp = {'a' : 10000, 'b' : 15000,
      'c' : 12000}
Sr = pd.Series(Emp)
Print(sr)
```

27. A character expression name contains 'try yourself'. Write a command to pick the following set of characters from it.

- (i) First 3 characters
- (ii) From 3rd to 7th character

28. Complete the given Python code to get the required output as: 16

```
import _____ as np
data = [1, 4, 9, 16]
series_data = np._____(data)
print(series_data[_____])
```

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## SECTION C

29. Consider the table EXAM given below. Write the queries for (i) to (iii).

Table : EXAM					
S No	Name	Stip-end	Subject	Average	Division
1	Karan	400	English	68	Ist
2	Aman	680	Mathematics	72	Ist
3	Javed	500	Accounts	67	Ist
4	Bishakh	200	Informatics	55	IInd
5	Sugandha	400	History	35	IIIrd
6	Suparna	550	Geography	45	IIIrd

- (i) To list the names of those students, who have obtained division as Ist in ascending order of Name.
- (ii) To count the number of students, who have either Accounts or Informatics as Subject.
- (iii) To display a report listing Name, Subject and annual Stipend received assuming that the Stipend column has monthly stipend.

or

Reena is working with functions of MySQL.

Explain her following

- (i) What is the purpose of NOW( ) function?
- (ii) How many parameters does it accept?
- (iii) What is the general format of its return type?

30. Given a DataFrame df as shown below

	A	B	C
0	21	12	69
1	45	45	84
2	23	86	70
3	17	33	78

What will be the result of the following code statements?

- (i) `df['D'] = np.NaN`
- (ii) `df['D'] = [23, 41, 32]`
- (iii) `df['D'] = [23, 41, 32, 9]`

31. Give the output of following commands.

- (i) `mysql>SELECT TRUNCATE (200.91, 1);`
- (ii) `mysql>SELECT LEFT ('Swati', 4);`
- (iii) `mysql>SELECT LENGTH ("Information");`

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32. Rahul has recently shifted to a new college and hostel. He does not know many people in his new college and hostel. But all of a sudden, someone is posting negative, demeaning comments on his social networking profile etc.

He is also getting repeated mails from unknown people. Every time he goes online, he finds someone chasing him online.

- (i) What is this happening to Rahul?
- (ii) What immediate action should he take to handle it?
- (iii) Is there any law in India to handle such issues? Discuss briefly.

or

What is software licensing ? Name two types of software licensing with an example of each.

## SECTION D

33. Mr. Ankit is working in an organisation as data analyst. He uses Python Pandas and Matplotlib for the same. He got a dataset of the passengers for the year 2010 to 2012 for January, March and December. His manager wants certain information from him, but he is facing some problems.

Help him by answering few questions given below:

	Year	Month	Passengers
0	2010	Jan	25
1	2010	Mar	50
2	2012	Jan	35
3	2010	Dec	55
4	2012	Dec	65

- (i) What will be the output of the following statements?
  - (a) `df.shape( )`
  - (b) `df.index=["AirIndia", "Indi go", "Spicejet", "Jet", "Emirates"]`
- (ii) Write the code to get the following output:

	Month	Passengers
0	Jan	25
2	Jan	35

- (iii) Predict the output of `print (df[1 : 3])`

**or (Option for part (iii) only)**

Suppose a DataFrame `df` contains information about student having columns `rollno`, `name`, `class` and `section`. Write the code to transpose DataFrame.

34. Tejasvi Sethi, a car dealer has stored the details of all cars in her showroom in a table `CARMARKET`. The table `CARMARKET` has attributes `CARCODE` which is a primary key, `CARNAME`, `COMPANY`, `COLOR`, `COST` (in lakh) of the car and `DOM` which is the Date of Manufacture of the car.

Table : CARMARKET					
CARC-ODE	CARNAME	COMPANY	COLOR	COST	DOM

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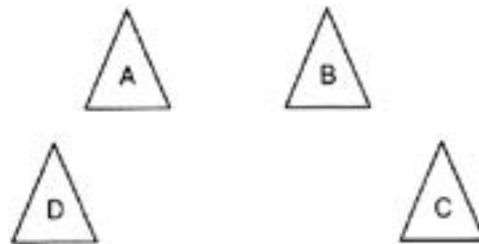
C01	BALENO	SUZUKI	BLUE	5.90	2019-11-07
C02	INDIGO	TATA	SILVER	12.90	2020-10-15
C03	GLC	MERCEDES	WHITE	62.38	2020-01-20
C04	A6	AUDI	RED	58.55	2018-12-29
C05	INNOVA	TOYOTA	BLACK	32.82	2017-11-10
C06	WAGON-R	SUZUKI	WHITE	12.11	2016-11-11
C07	BREZZA	SUZUKI	GOLDEN	9.80	2016-10-03

Help her by writing answers of the following questions based on the given table.

- (i) Display the carname along with the charges rounded off to 1 digit after decimal place.
- (ii) Display the carname, name of the company in lower case of all cars whose year (of dom) is 2020.
- (iii) Display the number of cars manufactured each year.
- (iv) Display the carname, color and position of the character 'E' in the color of all the cars.

## SECTION E

35. Green Valley Public School has 4 buildings in its campus . Distance between the buildings and the number of computers in each is given below



Building	Number of Computers
A	150
B	10
C	25
D	3

Building	Distance
A-B	10 m
A-C	1250 m
A-D	25 m
B-C	30 m
B-D	2000 m

- (i) Which building is best suitable for placement of server?
- (ii) If building A to D is to be connected, which device will be required for strong signals?
- (iii) Which building would need a switch/hub?
- (iv) Which topology would you suggest for connecting computers in each building?

**CLICK HERE TO SEE ANSWERS**





**Sample Paper 03**  
**INFORMATICS PRACTICES (065)**  
**CLASS XII 2024-25**

**Time: 3 Hours**

**Max. Marks: 70**

**General Instructions:**

1. Please check 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 4 questions (29 to 32). Each question carries 3 Marks.
  7. Section D consists of 2 case study type questions (33 to 34). Each question carries 4 Marks.
  8. Section E consists of 3 questions (35 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**

1. State whether the following statement is True or False:  
DataFrames in Pandas can only be created from lists and cannot use dictionaries.
  
2. A series "Pseries" is created with the values [1.6, numpy.NaN, 8.9, 10.5](Assuming numpy module is already imported). The output of the statement  
`Pseries.hasnans` will display  
(a) True (b) False  
(c) NaN (d) NULL
  
3. Suhhani is confused about the free operating system available in the market. Few of her friends suggested a few operating systems. Help her in choosing free operating system for her device.  
(a) Ubuntu (b) Windows  
(c) Mozilla Firefox (d) Blender
  
4. Which of the following is an example of active digital footprint?  
(a) Sharing personal information on Facebook, Instagram, etc.  
(b) Signing up when creating mail accounts.  
(c) Acceptance to install cookies when prompted to do so.  
(d) All of the above
  
5. W3C stands for \_\_\_\_\_.  
(a) World Wide Web (b) World Web Concerns  
(c) World Wide Web Consortium (d) World Wide Web Concerts

**CLICK HERE TO SEE ANSWERS**



6. We should exhibit proper manners and etiquettes while being online. Choose the right netiquette(s).
- (a) Avoid cyber bullying (b) Respect other's privacy  
(c) No copyright violation (d) All of the above
7. The indexes of a series can be seen by the property \_\_\_\_\_.
- (a) indexes (b) index  
(c) values (d) indices
8. State whether the following statement is True or False:  
The `AS` keyword in SQL is used to rename a column or table in the result set.
9. Rajan wanted to see all the values of a series school, which command(s) will do it ?
- (a) school[0:] (b) school[:]  
(c) school.all (d) Both (a) and (b)
10. Which of the following is not true about a freeware?
- (a) Available free of cost (b) Can be modified  
(c) Can be copied (d) Can be redistributed
11. Which of the following is/are not open source software(s)?
- (a) Mozilla Firefox (b) Adobe Photoshop  
(c) MS-Windows (d) Both (b) and (c)
12. The correct output of  
SELECT TRIM (LEADING '&' FROM '&&& India &&&&'); is
- (a) India &&& (b) India &&&&  
(c) && India (d) &&& India
13. What will be the output of the following query?  
Select MOD(16, 3);
- (a) 0 (b) 1  
(c) 2 (d) 3
14. Which of the following is the correct syntax of LCASE( ) function?
- (a) LCASE (row\_ name) (b) LCE (column\_ name)  
(c) LCASE (str/column\_ name) (d) None of these
15. To join the Internet, the computer has to be connected to a \_\_\_\_\_.
- (a) internet architecture board (b) internet society  
(c) internet service provider (d) different computer

Continue on next page.....

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16. Match the following SQL functions with their purposes:

SQL Funtion		Description	
P	DISTINCT	1.	Groups rows based on a specific condition
Q	LIMIT	2.	Restricts the result to a certain number of rows..
R	ORDER BY	3.	Removes duplicate rows in the result.
S	GROUP BY	4.	Sorts the rows in ascending or descending order.

(a) P-3, Q-2, R-4, S-1

(b) P-2, Q-3, R-1, S-4

(c) P-4, Q-3, R-2, S-1

(d) P-2, Q-3, R-1, S-4

17. The SQL function which obtains the smallest value in a selected column is

(a) MIN

(b) MAX

(c) SUB

(d) SUM

18. Megha wants to display the current system date and time, which function she must use to get the correct output?

(a) DATE()

(b) TIME()

(c) SYSDATE()

(d) CURDATE()

19. Name the function that is used to count the number of characters in a character expression.

(a) LENGTH

(b) COUNT

(c) SUM

(d) STRING

**Directions (Q.Nos. 20-21): Assertion and Reason based Questions.**

20. **Assertion (A)** : Histograms are used to describe distributions.

**Reason (R)** : To specify the intervals in x-axis, the property used is “interval”.

(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 but R is false.

(d) A is false but R is true.

21. **Assertion (A)** : MAN might cover few buildings in a city and might either be private or public.

**Reason (R)** : MAN is a network which spans a physical area that is larger than WAN but smaller than LAN.

(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 and R is true.

Continue on next page.....

**CLICK HERE TO SEE ANSWERS**



## SECTION B

22. Rajesh, a freelance website developer, has been tasked with designing several web pages for a bookshop. Help Aman decide whether to create static or dynamic web pages by clearly outlining at least two points of difference between static and dynamic web pages.

**or**

Priyanka, a beginner in IT field has just started learning web technologies. Help her in understanding the difference between website and web pages with the help of a suitable general example of each.

23. List two environmental hazards and two health hazards caused by e-Waste.
24. The Python code written below has syntactical errors. Rewrite the correct code and underline the corrections made.

```
Import pandas as pd
data = {'Name': ['Riya', 'Preeti', 'Neeta'], 'Age': [25, 30, 22]}
df = Pd.DataFrame(Data)
df.to_csv('output.csv')
```

25. Aryan, a database administrator, has grouped records of a table with the help of GROUP BY clause. He needs to further filter groups of records generated through GROUP BY clause. Suggest suitable clause for it and properly, explain its usage with the help of an example.

26. Complete the given Python code: Given a DataFrame 'df', select rows where the 'score' column is greater than 80 and 'age' column is less than 30.

```
import _____ as pd
df = pd.DataFrame({'name': ['Riya',
    'Preeti', 'Neeta'], 'age': [25,
    30, 22], 'score': [85, 78, 92]})
selected_rows = df[(df['score']
    >_____) & (df['age'] <_____) ]
print(selected_rows)
```

27. Riya has given the following command to obtain the highest salary

```
SELECT MAX (EMP_SALARY) FROM Employee
WHERE GROUP BY DOJ;
```

But she is not getting the desired output.

Help her by writing the correct command.

28. Consider the following DataFrame df 1:

	E Name	Sal	Bonus
0	Kavita	50000	3000
1	Sudha	60000	4000
2	Garima	55000	5000

Write the output of the given command:

```
df1.loc[:0, 'Sal']
```

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## SECTION C

29. Ritika is a new learner for the Python Pandas and she is aware of some concepts of Python but is unable to create the DataFrame. Help her by writing proper statements which will create the DataFrame for the following data.

Name: ['Manpreet', 'Kavil', 'Manu', 'Ria']

Phy : [70, 60, 76, 89]

Chem : [30, 70, 50, 65]

30. Saharsh is a student of Class IXth and he is a very frequent user of Internet applications. One day he got an unpleasant message on his instant messenger.

- (i) What do you think he should do?
- (ii) Exhibiting proper manners and etiquettes while being online is called as?
- (iii) Name the law to handle such issues?

**or**

Mr. Navneet found that his login id and password are automatically appearing on keypress in the login page. Explain him how cookies are responsible for this and how they are useful?

31. Ms.Saumya is working on a MySQL table named 'Hotel' having following structure:

Table : Hotel					
Field	Type	Null	Key	Default	Extra
user_id	varchar(20)	YES		NULL	
name	varchar(20)	YES		NULL	
city	varchar(20)	YES		NULL	
mobile_no	varchar(11)	YES		NULL	

She needs to perform following task on the table.

- (i) To fetch last 2 characters from the user\_id column.
- (ii) To display the values of name column in lower case.
- (iii) To display 3 characters from 3rd place from the column city.

Suggest suitable SQL function for the same. Also, write the query to achieve the desired task.

**or**

While dealing with string data type in MySQL, its observed that sometimes unnecessary space character comes in between which hampers the successful executing of a string manipulation module. Name the suitable MySQL function(s) to remove leading, trailing and both type of space characters from a string. Also, give MySQL queries to depict the same.

32. Predict the output of the following queries.

- (i) `SELECT INSTR('exams@cbse.nic.in', '.');`
- (ii) `SELECT SUBSTR('exams@cbse.nic.in' , 7, 4);`
- (iii) `SELECT LEFT('exams@cbse.nic.in' ,5);`

Continue on next page.....

**CLICK HERE TO SEE ANSWERS**



## SECTION D

33. Consider the following DataFrame dfn:

	A	B	C
Order	450	180	350
Purchase	330	550	610
Sell	250	410	380
Target	1050	980	1250

- (a) Write the output of the following statement.
- (i) `dfn[['A', 'B']]`
  - (ii) `dfn.loc ['Purchase', :]`
- (b) Write the code to replace the existing indexes of a DataFrame with O, P, S and T, respectively.
- (c) To transpose the DataFrame dfn.

**or (option for part (c) only)**

To create another DataFrame S1 and add above DataFrame to it.

34. Consider the above table and write the SQL commands for the following:

Table : Worker					
E code	Name	Desig	Plevel	DOJ	DOB
11	Radhey Shyam	Supervisor	P001	13-Sep-2004	23-Aug-1981
12	Chander Nath	Operator	P003	22-Feb-2010	12-Jul-1987
13	Fizza	Operator	P003	14-June-2009	14-Oct-1983
15	Ameen Ahmed	Mechanic	P002	21-Aug-2006	13-Mar-1984
18	Sanya	Clerk	P002	19-Dec-2005	09-June-1983

- (i) To display the details of all workers in descending order of DOB.
- (ii) To display Name and Desig of those workers, whose Plevel is either P001 or P002.
- (iii) To display the detail of all the workers, whose DOB is in between '19-JAN-1984' and '18-JAN-1987'.
- (iv) To add a new row with the following data:  
19, 'Daya kishore', 'Operator', 'P003', '19-Jun-2008', '11-Jul-1984'

## SECTION E

35. Write the code in Pandas to create the following Data Frame

	Name	Designation	Salary
1	Abhi	DBA	35000
2	Vanshika	Pragrammer	40000
3	Riya	Tester	32000
4	Chirag	Content Writer	25000

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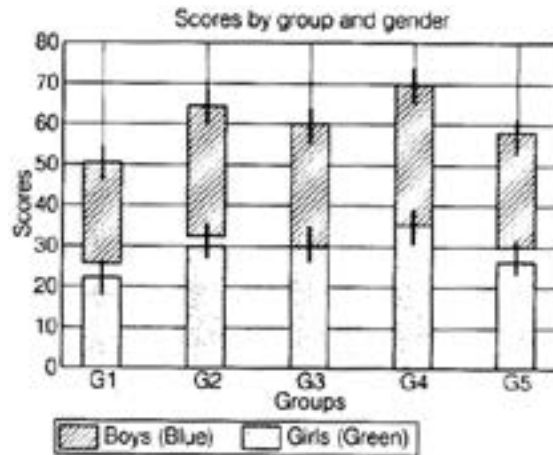
5	Tushar	Business Analyst	30000
6	Khushal	Sales Executive	37000
7	Mahi	Web Designer	42000

Write the commands to do the following operations on the DataFrame given above:

- (i) To select the column Designation.
- (ii) To change index label from 1 to E101, 2 to E102, .... and so on.

or

Write the code for the following bar graph.



36. Based on above table, write the SQL commands for the following:

Table : Furniture					
No	Item name	Type	Date of stock	Price	Discount
1	White lotus	Double Bed	23/02/02	30000	25
2	Pink feather	Baby Cot	20/01/02	7000	20
3	Dolphin	Baby Cot	19/02/02	9500	20
4	Decent	Office Table	01/01/02	25000	30
5	Comfort Zone	Double Bed	12/01/02	25000	25

- (i) To show all information about the baby cots from the Furniture table.
- (ii) To list the Itemname which are priced at more than 15000 from the Furniture table.
- (iii) To list Itemname and Type of those items, in which Dateofstock is before 22/01/02 from the Furniture table in the descending order of Itemname.
- (iv) To display Itemname and Dateofstock of those items, whose Type is “Sofa” from Furniture table
- (v) To insert a new row in the Furniture table with the following data:  
14, “Velvet touch”, “Double Bed”, {25/03/03}, 25000,30

or

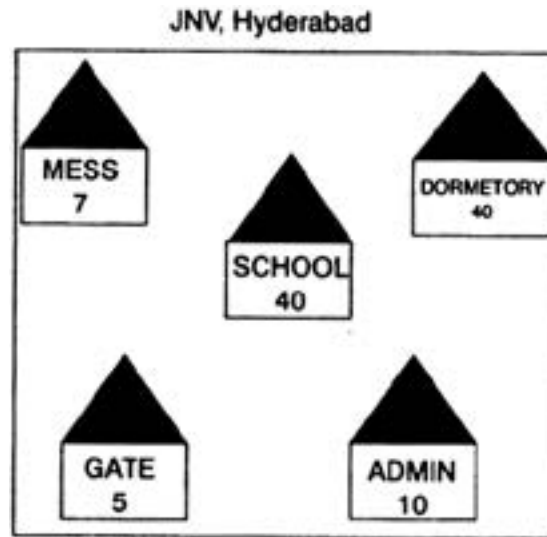
Explain the following SQL functions using suitable examples.

- (i) RIGHT()
- (ii) COUNT()
- (iii) YEAR()
- (iv) SUM()
- (v) MOD()

**CLICK HERE TO SEE ANSWERS**



37. JNV School at Hyderabad have their offices according to the following diagram. Go through the details and answer the questions that follows.



Distance between various wings are given below:

Wings	Distance (in metre)
MESS to SCHOOL	60
MESS to DORMETORY	110
MESS to GATE	65
MESS to ADMIN	130
SCHOOL to DORMETORY	40
SCHOOL to GATE	50
SCHOOL to ADMIN	68
DORMETORY to GATE	115
DORMETORY to ADMIN	100
GATE to ADMIN	65

- (i) Name the most suitable wing, where the server should be installed. Justify your answer.
- (ii) Draw the cable layout to efficiently connect various wings JNV, Hyderabad and also write the topology.
- (iii) Suggest a device/software and its placement that would provide data security for the entire network of the School.
- (iv) (a) Which device will you suggest to be placed/installed in each of these wings to efficiently connect all the computers within these wings.  
(b) Suggest the placement of a repeater in the network with justification.
- (v) Suggest a device and the protocol that shall be needed to provide wireless Internet access to all smart phone/laptop users in the campus of JNV, Hyderabad.

END



**Sample Paper 04**  
**INFORMATICS PRACTICES (065)**  
**CLASS XII 2024-25**

**Time: 3 Hours**

**Max. Marks: 70**

**General Instructions:**

1. Please check 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 4 questions (29 to 32). Each question carries 3 Marks.
  7. Section D consists of 2 case study type questions (33 to 34). Each question carries 4 Marks.
  8. Section E consists of 3 questions (35 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**

1. State whether the following statement is True or False:  
The `DataFrame.shape`` attribute returns the number of rows and columns in a DataFrame as a tuple.
2. The term phishing is synonymous to the term  
(a) spoofing (b) spooling  
(c) stalking (d) None of these
3. The rights of the owner of information to decide, how much information is to be shared/exchanged/ distributed, are collectively known as \_\_\_\_\_.  
(a) Intelligent Portable Rights (b) Intellectual Property Rights  
(c) Interactive Property Rights (d) Instance Portability Rights
4. Rohit forgot his laptop in his car and when he came back, he found his laptop was missing. This act is \_\_\_\_\_.  
(a) cybercrime (b) phishing  
(c) theft (d) plagiarism
5. While creating a DataFrame Sunil wanted to specify the datatype, \_\_\_\_\_ property will help him to do so.  
(a) datatype (b) type  
(c) dtype (d) dt

Continue on next page.....

**CLICK HERE TO SEE ANSWERS**



6. Which of the following statement(s) is/are incorrect?
- (a) A column of a DataFrame can be deleted.
  - (b) A column of a DataFrame can be deleted, if it carries no data.
  - (c) A column of a DataFrame can be deleted, if it carries NaN values.
  - (d) Columns of DataFrame cannot be deleted.
7. The HAVING clause acts like a WHERE clause, but it identifies columns that meet a criterion, rather than rows.
- (a) True
  - (b) False
  - (c) Depend on query
  - (d) Depend on column
8. State whether the following statement is True or False:  
The `PRIMARY KEY` constraint allows NULL values in a column.
9. A series is created with 5 integers as
- ```
import pandas as pd
Nseries=pd.Series([22,44,55,33,66])
print(Nseries.nbytes)
```
- Find the output of the above code.
- (a) 15
  - (b) 10
  - (c) 20
  - (d) 25
10. `SELECT _____ (Calorie) FROM Food WHERE NOT type = "Protein";`  
Requirement : To get the average calories of non-protein type foods. Select the appropriate function to complete the above query.
- (a) Mean
  - (b) Min
  - (c) AVG
  - (d) Sum
11. What does the web server need to send back information to the user?
- (a) Home address
  - (b) Domain name
  - (c) IP address
  - (d) Both (b) and (c)
12. \_\_\_\_\_ device may operate at different network speeds depending on the protocol standard they support.
- (a) Router
  - (b) Ethernet card
  - (c) RJ45 Connector
  - (d) None of these
13. Which of the following commands is not a data manipulation command?
- (a) SELECT
  - (b) INSERT
  - (c) UPDATE
  - (d) ALTER
14. Which of the following operators compare two conditions at a time to determine whether a row can be selected for the output?
- (a) Comparison operators
  - (b) Logical operators
  - (c) Arithmetic operators
  - (d) Between operator



15. Electronic discovery technique used to determine and reveal technical criminal evidence is called \_\_\_\_\_.  
 (a) cyber investigation (b) cyber evidence  
 (c) cyber forensics (d) cyber intrude

16. Match the following SQL functions with their purposes:

| SQL Funtion |         | Description |                                               |
|-------------|---------|-------------|-----------------------------------------------|
| P           | INT     | 1.          | Stores date values                            |
| Q           | VARCHAR | 2.          | Stores integer values..                       |
| R           | DATE    | 3.          | Stores variable-length strings.               |
| S           | DECIMAL | 4.          | Stores precise numeric values with decimals.. |

- (a) P-3, Q-2, R-4, S-1 (b) P-2, Q-3, R-1, S-4  
 (c) P-4, Q-3, R-2, S-1 (d) P-2, Q-3, R-1, S-4

17. Help Ritesh to write the command to display the name of the youngest student.

- (a) `SELECT Name, MIN(DOB) FROM Student;`  
 (b) `SELECT Name, MAX(DOB) FROM Student;`  
 (c) `SELECT Name, MIN(DOB) FROM Student GROUP BY Name;`  
 (d) `SELECT Name, MAXIMUM(DOB) FROM Student;`

18. In MySQL which function is used to find the round off value of the specified floating point number?

- (a) `FLOAT()` (b) `TRUNCATE()`  
 (c) `ROUND()` (d) `DECIMAL()`

19. Which of the following statements is incorrect in the context of a worm?

- (a) It represents a category of malware (b) It creates infections in a computer  
 (c) It is self replicating (d) It cannot travel on its own

**Directions (Q.Nos. 20-21) : Assertion and Reason based Questions.**

20. **Assertion (A)** : Data Frame. `count()` function will display the sum of the values from the data frame.

**Reason (R)** : `axis=0`, argument is to used to find sum column-wise.

- (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 but R is false.  
 (d) A is false but R is true.

21. **Assertion (A)** : A switch is more efficient than a hub in managing network traffic.

**Reason (R)** : Unlike a hub, a switch can send data packets directly to the intended recipient based on the recipient's MAC address.

- (a) Both A and R are true and R is the correct explanation of A.  
 (b) Both A and R are true and R is the not correct explanation of A.  
 (c) A is true but R is false.  
 (d) A is false but R is true.



## SECTION - B

22. What do you understand by degree and cardinality of a table? Give an example.
23. Sahil, a Class X student, has just started understanding the basics of Internet and web technologies. He is a bit confused in between the terms “World Wide Web” and “Internet”.  
Help him in understanding both the terms with the help of suitable examples of each.

or

Ruhani wants to edit some privacy settings of her browser. How can she accomplish her task?

24. The Python code written below has syntactical errors. Rewrite the correct code and underline the corrections made.

```
import pandas as Pd
data = [10, 20, 30, 40, 50]
myseries = pd.Series(data)
result = my_series + 5
print()
```

25. Shanya Khanna is using a table EMPLOYEE. It has the following columns.  
Admno, Name, Agg, Stream [column Agg contains Aggregate marks]  
She wants to display highest Agg obtained in each Stream.  
She wrote the following statement:  
SELECT Stream, MAX(Agg) FROM EMPLOYEE;  
But she did not get the desired result. Rewrite the above query with necessary changes to help her get the desired output.

26. Given a code :
- ```
Numseries = pd.Series ([12,14,16])
```
- Write the Python command to:
- Display the double of each element of Series.
  - Display all odd values of Series.

27. Complete the given Python code: Given the DataFrame ‘df’, drop the ‘salary’ column and display the first 5 rows of the modified DataFrame.

```
import _____ as pd
df = pd.DataFrame({'name': ['Riya', 'Preeti', 'Neeta'],
                  'age': [25, 30, 22],
                  'salary': [50000, 60000, 45000]})
df = df._____ (_____, axis=1)
print(df. _____ (_____))
```

28. What are the disadvantages of e-Waste recycling?

Continue on next page.....

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## SECTION - C

29. XYZ Company developed software, related to face recognition with a team of 15 software developers. XYZ company registered the software with a face symbol to easily recognize their software. Before approval of software by the registering firm, Rohit one of the team member of the software published the same software in internet under different name as it is his own development. XYZ firm recognized this activity and informed to the police. The police people arrested the Rohit and removed the software from the internet. Police advice the XYZ firm to apply for patent as the software is a new invention.

Answer the following questions

- (i) XYZ firm registered the software with face symbol to easily recognize their software .In this context, face symbol is called as \_\_\_\_\_.
- (ii) The activities done by the Rohit is called as \_\_\_\_\_.
- (iii) Among the following options, which is automatically granted to XYZ Company?
  - (a) Trademark
  - (b) Patent
  - (c) Copyright
  - (d) None of these

or

Define the content management system of digital property right. List three factors about the reason behind plagiarism.

30. Consider the following table GARMENT, write SQL commands for the statements (i) to (iii).

Table : GARMENT				
GCODE	DESCRIPTION	PRICE	FC-ODE	READY-DATE
10023	PENCIL SKIRT	1150	F03	19-DEC-08
10001	FORMAL SHIRT	1250	F01	12-JAN-08
10012	INFORMAL SHIRT	1550	F02	06-JUN-08
10024	BABY TOP	750	F03	07-APR-07
10090	TULIP SKIRT	850	F02	31-MAR-07
10019	EVENING GOWN	850	F03	06-JUN-08
10009	INFORMAL PANT	1500	F02	20-OCT-08
10007	FORMAL PANT	1350	F01	09-MAR-08
10020	FROCK	850	F04	09-SEP-07
10089	SLACKS	750	F03	20-OCT-08

- (i) To display GCODE and DESCRIPTION of each GARMENT in descending order of GCODE.
- (ii) To display the details of all the GARMENT, which have READYDATE in between 08-DEC-07 and 16-JUN-08 (inclusive if both the dates).
- (iii) To display the average PRICE of all the GARMENT, which are made up of fabric with FCODE as F03.

or

Describe different kinds of SQL command with proper examples.

Continue on next page.....

**CLICK HERE TO SEE ANSWERS**



31. Consider the table PERSONS given below. Write output for queries (i) to (iii).

Table : PERSONS						
PID	SurName	FirstName	Gender	City	PinCode	Salary
1	Sharma	Geet	F	Udhamwara	182141	50000
2	Singh	Surinder	M	Kupwara Nagar	193222	75000
3	Jcob	Peter	M	Bhawani	185155	45000
4	Alvis	Thomas	M	Ahmed Nagar	380025	50000
5	Mohan	Gaurav	M	Nagar Coolangatta	390026	33000
6	Azmi	Simi	F	New Delhi	110021	40000
7	Kaur	Manpreet	F	Udhamwara	182141	42000

- (i) `SELECT SurName FROM PERSONS WHERE Salary > = 50000;`  
 (ii) `SELECT SUM (Salary) FROM PERSONS WHERE Gender = 'F';`  
 (iii) `SELECT Gender, MIN (Salary) FROM PERSONS GROUP BY Gender;`

32. Amit wants to create a DataFrame df whose columns store following data about his friends:

Roll No	Name	Email
1	Kailash	kai@gmail.com
2	Rima	rim@gmail.com
3	Sunil	sun@gmail.com

Write the Python command to

- (i) Display the second row.  
 (ii) Alter the position of column Name and E-mail.  
 (iii) Export the DataFrame to CSV file named friends.

## SECTION - D

33. Given a DataFrame Traindf:

Index	Trainno	T name	Fare
0	12378	Padatik	8900
1	12344	Rajdhani	2900
2	12450	Gitanjali	5600

- (a) Predict the output of the following Python statement.  
 (i) `print (Traindf.loc[2, "Fare"]%2)`  
 (ii) `del Traindf['Fare']`  
`print (Traindf)`  
 (b) Write the command that displays output as 9.  
 (c) To delete the 3rd column.

or (Option for part (c) only)

Write the command to display second row only.

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34. Consider the table FANS:

Table : FANS				
FAN_ID	FAN_NAME	FAN_CITY	FAN_DOB	FAN_MODE
F001	SUSHANT	MUMBAI	1998-10-02	MAIL
F001	RIYA	MUMBAI	1997-12-12	LETTER
F003	ANIKA	DELHI	2001-06-30	BLOG
F004	RUDRA	AJMER	2005-08-22	MAIL
F006	MIARA	KOLKATTA	1998-11-01	BLOG

Write MySQL queries for the following questions:

- (i) To display the details of FANS in descending order of their DOB.
- (ii) To display the details of FANS who does not belong to AJMER.
- (iii) To count the total number of FANS of each FAN\_MODE.
- (iv) To display the DOB of the youngest fan.

## SECTION - E

35. Write the code in Pandas to create the following DataFrame:

	df1			df2	
	Mark1	Mark2		Mark1	Mark2
0	30	20	0	10	15
1	40	45	1	20	25
2	15	30	2	20	30
3	40	70	3	50	30

Write the commands to do the following operations on the dataframes given above:

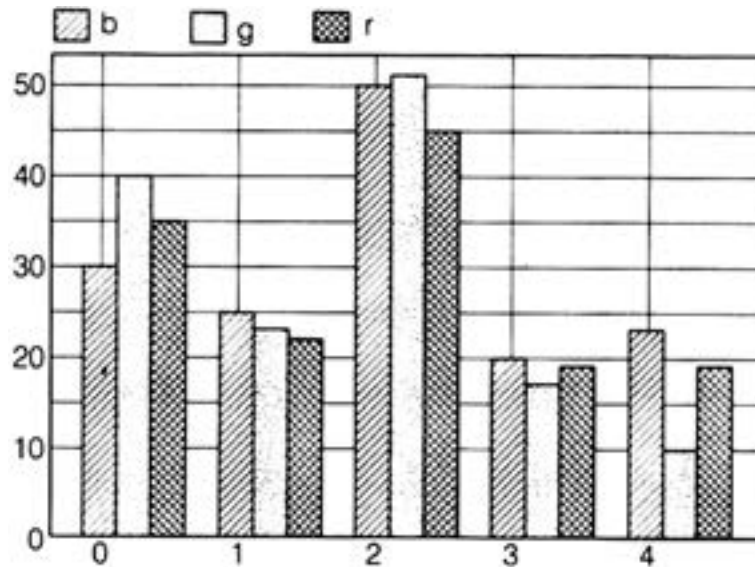
- (i) To display both the dataframes.
- (ii) To add dataframes df1 and df2.
- (iii) To subtract df2 from df1.
- (iv) To rename column Mark1 as Marks1 in both the dataframes df1 and df2.
- (v) To change index label of df1 from 0 to zero and 1 to one.

or

Given a plot below, write the Python code to plot the graph.

**CLICK HERE TO SEE ANSWERS**





36. Akhilesh a clerical staff in a Doctor's Dispensary. He maintains records of visiting doctors in a table Doctor. He wants to analyse some data and find some results such as total number of doctors of certain departments, average charges in some departments etc. Help him in writing proper queries to get the results.

Table : Doctor				
Did	Dname	Dept	Charges	VisitDays
D01	R. Sharma	ENT	1000	Mon
D02	D. Basak	ENT	1500	Wed
D03	M. Agarwal	PAED	6000	Sat
D04	E. Joseph	Ortho	1200	Sun
D05	M. Fernandes	Ortho	4000	Thu

- To display the maximum Charges among the Ortho Doctors.
- To display the doctor names in uppercase along with their department names concatenated.
- To display each department and the total number of doctors in them.
- To display each department and the average charges of each.
- To display the detail of doctor whose department is ENT.

or

Consider the following table CLUB.

Table : CLUB					
COA CH_ID	COACH NAME	AGE	SPORTS	Date_of_Joining	PAY
1	Rajesh	30	Karate	1999-08-25	1000
2	Anuj	35	Swimming	2000-01-05	750
3	Shuchi	25	Basketball	2005-01-04	1200
4	Reetika	28	Badminton	2002-08-25	1400
5	Virendra	32	Cricket	1996-05-17	1500

Give the answer of the following questions on the basis of the above table.

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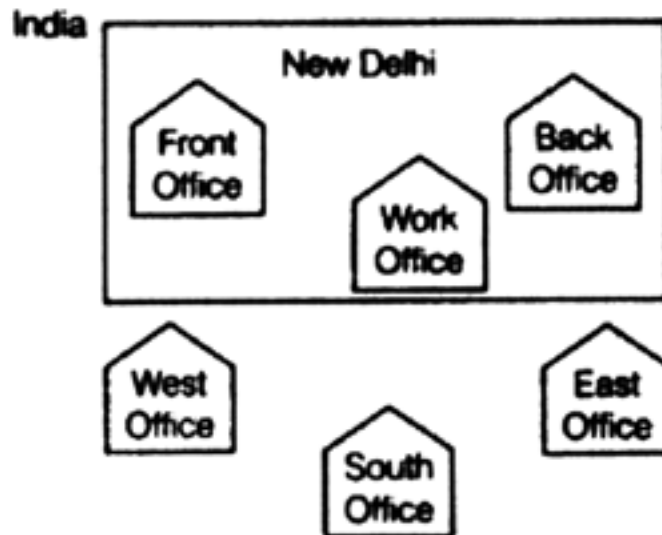


- (i) Write a query to display the substring of 4 characters of the name of each coach, starting from second character, with their age.
- (ii) What will be the output of the following query?  

```
mysql>SELECT CONCAT (COACHNAME,
    AGE) FROM CLUB WHERE AGE> 30;
```
- (iii) Write a query to display the day for the Date\_of Joining column.
- (iv) What will be the output of the following query?  

```
SELECT PAY *0.25 + 1000 FROM CLUB
    WHERE COACHNAME LIKE 'R%';
```
- (v) Write a query to display 3 characters from left of coach name.

37. Bhartiya Connectivity Association is planning to spread their offices in four major cities of India to provide regional IT infrastructure support in the field of education and culture. The company has planned to set up their head office in New Delhi in three locations and have named their New Delhi offices as Front Office, Back Office and Work Office. The company has three more regional offices as three major cities of India. A rough layout of the same is as follows:



Approximate distances between these offices as per network survey team is as follows:

Place from	Place to	Distance
Back Office	Front Office	10 m
Back Office	Work Office	70 m
Back Office	East Office	1291 m
Back Office	West Office	790 m
Back Office	South Office	1952 m

In continuation of the above, the company experts have planned to install the following number of computers in each of their offices.

Back Office	100	Front Office	20
Work Office	50	East Office	50
West Office	50	South Office	50



- (i) Suggest the network type (out of LAN, MAN, WAN) for connecting each of the following set of the their offices.
- (a) Back Office and Work Office
  - (b) Back Office and South Office
- (ii) Which device will you suggest to be procured by the company for connecting all the co computers with each of their offices out of the following devices?
- (a) Switch/Hub
  - (b) Modem
- (iii) Suggest the cable/wiring layout for connecting the company's local offices located in New Delhi. Also, suggest an effective method for connecting the company's regional offices East Office, West Office and South Office with officeg located in New Delhi.
- (iv) Data is converted in a form so as to travel over telpphone lines using this device.
- (v) Network device that sends the data over optimising paths through connected loop is
- (a) gateway
  - (b) hub
  - (c) router
  - (d) bridge

END

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**Sample Paper 05**  
**INFORMATICS PRACTICES (065)**  
**CLASS XII 2024-25**

**Time: 3 Hours**

**Max. Marks: 70**

**General Instructions:**

1. Please check 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 4 questions (29 to 32). Each question carries 3 Marks.
  7. Section D consists of 2 case study type questions (33 to 34). Each question carries 4 Marks.
  8. Section E consists of 3 questions (35 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**

1. State whether the following statement is True or False:  
The “.dropna()” method in Pandas removes all rows with any missing values by default.
2. Write the output of the following statement.  
`SELECT ROUND (1023.432, 1) ;`  
(a) 1023.5  
(b) 1023.432  
(c) 1023.43  
(d) 1023.4
3. Series is \_\_\_\_\_ dimensional array with homogeneous data.  
(a) one  
(b) two  
(c) three  
(d) None of these
4. A/An \_\_\_\_\_ is a self replicating program which eats up the entire disk space or memory.  
(a) Spyware  
(b) Adware  
(c) Worm  
(d) Trojan
5. Which of the following are not ways of data protection?  
(a) Using password  
(b) Using User IDs  
(c) Using encryption techniques  
(d) None of these
6. Jack is a good programmer and wants to contribute to the features of one of the softwares, that he uses. What kind of software he can contribute to?  
(a) Proprietary software  
(b) Free software  
(c) Open source software  
(d) Shareware

**CLICK HERE TO SEE ANSWERS**



7. Anil never writes a subject line in his mails. This is an instance of \_\_\_\_\_.  
(a) Spamming (b) Phishing  
(c) Not obeying of E-mail etiquettes (d) Trolling
8. State whether the following statement is True or False:  
The “JOIN” clause in SQL is used to combine rows from multiple tables based on a related column between them.
9. Which among the following are good preventive measures against health hazards of technology use?  
(a) Periodic walks between long usage of devices (b) Using screen guards  
(c) No overuse of technology (d) All of these
10. \_\_\_\_\_ method is used to add title to the chart.  
(a) title( ) (b) caption( )  
(c) head( ) (d) heading( )
11. Find the output of following SQL statement:  
`SELECT MONTH ( '2014-04-12' );`  
(a) 4 (b) 12  
(c) 16 (d) Error
12. Online textual talk is called \_\_\_\_\_.  
(a) video conferencing (b) telephony  
(c) text phone (d) chat
13. The pop() method can be used for  
(a) Series (b) DataFrame  
(c) Both (a) and (b) (d) None of these
14. If emp\_id contain the set { - 1, - 2, 2, 3, - 3, 1}, what will be the output on execution of the following MySQL statement?  
`SELECT emp_id  
FROM PERSON  
ORDER BY emp_id;`  
(a) { - 3, - 2, - 1, 1, 2, 3} (b) { -1, 1, - 2, 2, - 3, 3}  
(c) {1, 2, 3, -1, - 2, - 3} (d) None of the mentioned
15. Which of the following is the correct syntax for the LCASE() function?  
(a) LCASE (row\_name) (b) LCE (column\_name)  
(c) LCASE (str/column\_name) (d) None of these

Continue on next page.....

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16. Match the following SQL functions with their purposes:

SQL Funtion		Description	
P	DISTINCT	1.	Groups rows based on a specific condition
Q	LIMIT	2.	Restricts the result to a certain number of rows..
R	ORDER BY	3.	Removes duplicate rows in the result.
S	GROUP BY	4.	Sorts the rows in ascending or descending order.

(a) P-3, Q-2, R-4, S-1

(b) P-2, Q-3, R-1, S-4

(c) P-4, Q-3, R-2, S-1

(d) P-2, Q-3, R-1, S-4

17. Which keyword is used to eliminate redundancy from a database?

(a) Different

(b) Unique

(c) Distinct

(d) None of these

18. What is the significance of the statement “HAVING COUNT (emp\_id)>2” in the following MySQL statement?

```
SELECT name, COUNT (emp_id), emp_no
FROM department
GROUP BY name
HAVING COUNT (emp_id)>2;
```

(a) Filter out all rows whose total emp\_id below 2

(b) Selecting those rows whose total emp\_id>2

(c) Both (a) and (b)

(d) None of the mentioned

19. By default, web pages are saved in the \_\_\_\_\_ folder.

(a) Download

(b) Document

(c) Picture

(d) Music

**Directions (Q.Nos. 20-21) : Assertion and Reason based Questions.**

20. **Assertion (A)** : Data Frames can store heterogeneous data.

**Reason (R)** : Data Frames are immutable.

(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 but R is false.

(d) A is false but R is true.

Continue on next page.....

**CLICK HERE TO SEE ANSWERS**



- 21. Assertion (A) :** In March 1989, Tim Berners-Lee took the initiative towards the invention of WWW and wrote the first proposal for the World Wide Web.
- Reason (R) :** World Wide Web is a way of exchanging information between computers on the Internet.
- (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 and R is true.

## SECTION - B

- 22.** Amisha aims to organize the result set by grouping it based on the values in a specific column. Additionally, she wants the grouped results to be displayed in a sorted sequence. In what sequence should she arrange the two clauses for grouping and sorting? Provide an example to illustrate your answer.
- 23.** The following query is resulting in an error. Identify the error and provide the correct version of the query:  
`SELECT * FROM EMP ORDER BY NAME WHERE SALARY >= 5000;`
- 24.** List one function of gateway and switch each.

**or**

What is a computer network? List down the types of computer networks.

- 25.** Answer the following based on the Series given below:

```
import pandas as pd
list1=[1,2,3,4,5,6,7,8]
list2=['swimming', 'tt', 'skating',
'kho kho', 'bb', 'chess', 'football',
      "cricket"]
```

```
school=pd.Series(list1,index=list2)
school.name="little"
```

What will be the output of

- (i) `print(school*2)`  
 (ii) `print(school["tt"])`

- 26.** The Python code below contains syntax errors. Rewrite the code correctly, and underline the corrections made.

```
import pandas as pd
data = ('A': Pd.Series([1, 2, 3]),
        'B': Pd.Series([4, 5, 6]))
df = pd.dataframe(data)
Print(df)
```

- 27.** Complete the given Python code: to read data from the CSV file 'data.csv' into a DataFrame and display the first 5 rows.

```
import _____ as pd
df = pd.read_csv(_____)
print(df._____(_____))
```

- 28.** Describe the concepts of password cracking and eavesdropping.

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## SECTION - C

29.

	LED	OLED	Curved
0	Samsung	SONY	Panorama
1	LG	TOSHIBA	Weston
2	BPL	TATA	Microsoft

Write the Python code to create the above Data Frame 'tvdf'.

30. Consider the following DataFrame dfn that contain vegetables.

	Color	Quantity	Price
Capsicum	Red	12	60
Capsicum	Green	22	100
Chilli	Red	50	40
Chilli	Green	65	55
Lime	Green	20	35

Write the code statement to the following:

- (i) Find all rows with the label "Chilli". Extract all columns.
- (ii) List 2nd, 3rd and 4th rows.
- (iii) List only the columns Quantity and Price using loc.

31. Based on above table Student, write the output of the following queries.

Table : Student						
Roll No	Name	Cla-ss	DOB	Gender	City	Marks
1	Anand	XI	06-06-1997	M	Agra	430
2	Chetan	XII	07-05-1994	M	Mumbai	460
3	Geet	XI	06-05-1997	F	Agra	470
4	Priti	XII	08-08-1995	F	Mumbai	492
5	Saniya	XII	08-10-1995	F	Delhi	360
6	Neha	X	08-12-1995	F	Burdwan	324
7	Nishant	X	12-06-1995	M	Burdwan	429

- (i) `SELECT Name FROM Student WHERE City IN("Agra", "Mumbai");`
- (ii) `SELECT * FROM Student WHERE Gender="F" AND Class= "XII"ORDER BY Marks;`
- (iii) `SELECT Gender, AVG(Marks) FROM Student GROUP BY Gender HAVING Class="XI";`

or

Table : Sales
Column Name

**CLICK HERE TO SEE ANSWERS**



Store_ID
Sales_Date
Sales_Amount

Write queries to find:

- (i) The amount for each store.
- (ii) The list of all the store name whose total Sales amount is over 5000.
- (iii) The total number of stores in the Sales table.

**32.** Riya discovered that her photo, posted on a social networking site, had been altered by merging it with an unknown person's image and then published.

- (i) What should she do?
- (ii) Later she found that after posting some images in social media, some people were writing negative messages. This is an instance of...
- (iii) Using someone's Twitter handle to post something will be termed as...

**or**

List e-Waste hazards on environment and on human health.

## SECTION - D

**33.** A DataFrame "States" contains data as follows:

	SName	Covidcases
0	Punjab	2090
1	WB	1600
2	Kerala	4000

- (a) Give the output of
  - (i) `States.loc[States.SName=='Punjab']`
  - (ii) `States.tail(1)`
- (b) Write Python statement to write the DataFrame to CSV file covid.csv.
- (c) Write Python statement to display the last state.

**or (Option for part (c) only)**

Give syntax to access multiple columns of the DataFrame.

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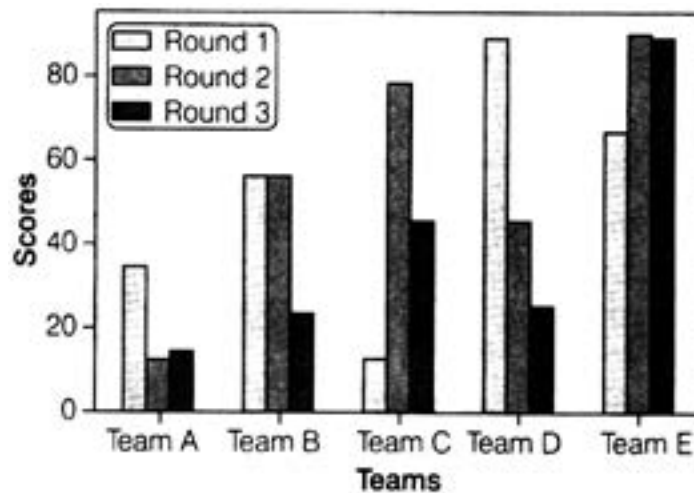
34. Based on above table WORKER, write the SQL queries for (i) to (iv).

Table : WORKER					
WNO	NAME	DOJ	DOB	GENDER	DCODE
1001	George K	2013-09-02	1991-09-01	MALE	D01
1002	Ryma Sen	2012-12-11	1990-12-15	FEMALE	D03
1003	Mohitesh	2013-02-03	1987-09-04	MALE	D05
1007	Anil Jha	2014-01-17	1984-10-19	MALE	D04
1004	Manila Sahai	2012-12-09	1986-11-14	FEMALE	D01
1005	R SAHAY	2013-11-18	1987-03-31	MALE	D02
1006	Jaya Priya	2014-06-09	1985-06-23	FEMALE	D05

- (i) To display WNO, NAME, GENDER from the table WORKER in descending order of WNO.
- (ii) To display the NAME of all the FEMALE workers from the table WORKER.
- (iii) To display the WNO and NAME of those workers from the table WORKER, who are born between '1987-01-01' and '1991-12-01'.
- (iv) To count and display MALE workers who have joined after '1986-01-01'.

## SECTION - E

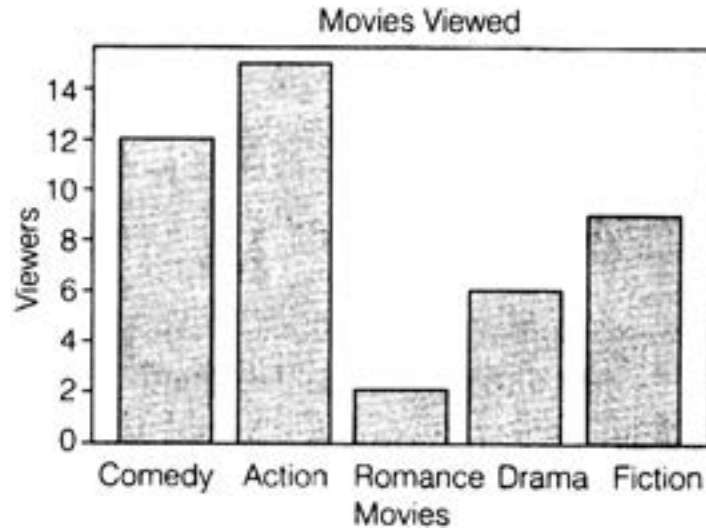
35. Write the Python code to plot the graph as shown below:



or

Observe the following graph and write the Python code to get the desired graph.





36. Write SQL command for questions (i) to (v) on the basis of table Interiors.

Table : Interiors					
No	Item name	Type	Dateofstock	Price	Disc-ount
1	Red rose	Double Bed	23/02/02	32000	15
2	Soft touch	Baby Cot	20/01/02	9000	10
3	Jerry's home	Baby Cot	19/02/02	8500	10
4	Rough wood	Office Table	01/01/02	20000	20
5	Comfort zone	Double Bed	12/01/02	15000	20
6	Jerry look	Baby Cot	24/02/02	7000	19
7	Lion king	Office Table	20/02/02	16000	20
8	Royal tiger	Sofa	22/02/02	30000	25
9	Park sitting	Sofa	13/12/01	9000	15
10	Dine Paradise	Dining Table	19/02/02	11000	15
11	White wood	Double Bed	23/03/03	20000	20
12	James 007	Sofa	20/02/03	15000	15
13	Tom look	Baby Cot	21/02/03	7000	10

- (i) To show all information about the sofas from the Interiors table.
- (ii) To list the Itemname which are priced at more than 10000 from the Interiors table.
- (iii) To list Itemname and Type of those items, in which Dateofstock is be 22/01/02 from the Interiors table in descending order of Itemname.
- (iv) To display Itemname and Dateofstock of items whose discount is more than 15.
- (v) To insert a new row in the table with the following data:  
14, "True Indian", "Office Table", {28/03/03}, 15000, 20

or

Define the following terms:

- (i) INSERT Command
- (ii) SELECT Command

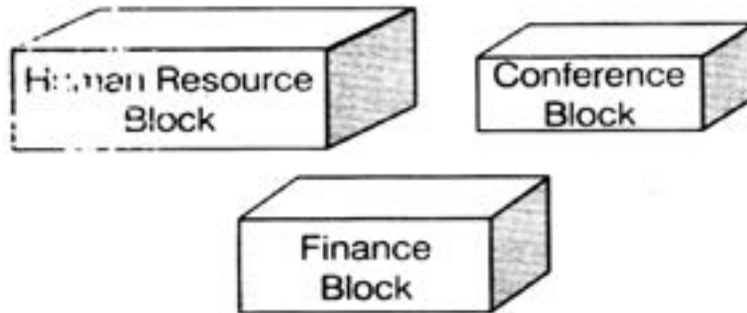
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- (iii) DELETE Command
- (iv) DCL Command
- (v) WHERE Clause

37. Global Solutions Inc. (GSI) is a professional consultancy firm. The company plans to establish new offices in India, with its main hub located in Hyderabad. As a network advisor, your role is to understand their requirements and recommend the best available solutions. Their questions are listed from (i) to (v) below.

**Physical locations of the blocks of TTC**



Block to block distance (in metre)

Block (From)	Block (To)	Distance
Human Resource	Conference	110
Human Resource	Finance	40
Conference	Finance	80

Expected number of computers to be in each block

Block	Computers
Human Resource	25
Finance	120
Conference	90

- (i) Which will be the most appropriate block, where TTC should plan to install their server?
- (ii) Draw a block to block cable layout to connect all the buildings in the most appropriate manner for efficient communication.
- (iii) Which of the following device will be suggested by you to connect each computer in each of the buildings?
  - (a) Switch
  - (b) Modem
  - (c) Gateway
- (iv) What are the advantages of networking?
- (v) State the use of repeater.

END

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**Sample Paper 06**  
**INFORMATICS PRACTICES (065)**  
**CLASS XII 2024-25**

**Time: 3 Hours**

**Max. Marks: 70**

**General Instructions:**

1. Please check 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.
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  6. Section C consists of 4 questions (29 to 32). Each question carries 3 Marks.
  7. Section D consists of 2 case study type questions (33 to 34). Each question carries 4 Marks.
  8. Section E consists of 3 questions (35 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**

1. State whether the following statement is True or False:  
The dropna() method in Pandas removes all rows with any missing values by default.
2. Open office is a/an \_\_\_\_\_.  
(a) documentation (b) spreadsheet  
(c) presentation (d) office application suite
3. The return type of POWER( ) function is  
(a) String (b) Date  
(c) Numeric (d) None of these
4. \_\_\_\_\_ refers to stealing of required information by seeking and exploring weakness in a computer.  
(a) Piracy (b) Hacking  
(c) Digital Property Rights (d) Trademark
5. Method or function to add a new row in a DataFrame is  
(a) .loc() (b) .iloc()  
(c) join() (d) add()
6. The \_\_\_\_\_ translates Internet domain and host names to IP address.  
(a) Domain Name System (DNS) (b) Routing Information Protocol (RIP)  
(c) Internet Relay Chart (IRC) (d) Network Time Protocol (NTP)

**CLICK HERE TO SEE ANSWERS**



7. Bulk volume of calls/messages from looking to be authorised sources is an example of \_\_\_\_\_.  
(a) cyber stalking (b) bullying  
(c) IPR infringement (d) phishing
8. State whether the following statement is True or False:  
In SQL, `DELETE` and `DROP` are used interchangeably to remove data from a table.
9. Given the code:  

```
datastud=[[ 'Shreya', 20, 30],  
[ 'Rakhi', 23, 50], [ 'Priya', 45, 90]]  
dfs=pd.DataFrame(datastud)
```

  
The statement to add the column names 'Name', 'Eng', 'IP' to the DataFrame will be  
(a) `dfs.fields= [ 'Name', 'Eng', 'IP' ]`  
(b) `dfs.rows= [ 'Name', 'Eng', 'IP' ]`  
(c) `dfs.columns=[ 'Name', 'Eng', 'IP' ]`  
(d) None of these
10. Write the output of the following SQL query.  

```
SELECT INSTR( 'INTERNATIONAL', 'NA' );
```

  
(a) 5 (b) 6  
(c) 11 (d) 2
11. \_\_\_\_\_ is not an e-Waste?  
(a) Books (b) Laptop  
(c) Monitor (d) Motherboard
12. A shareware is  
(a) free of cost (c) has some restrictions for use  
(b) freely available for a limited period (d) Both (b) and (c)
13. The `savefig()` function is \_\_\_\_\_.  
(a) saves a DataFrame (b) saves a Series  
(c) saves a panel (d) saves a graph
14. Which of the following performs a pre-defined task and returns some type of result?  
(a) Database (b) SQL function  
(c) Implementation (d) None of these
15. Which SQL function will give 'MAHAL' as output in the following query?  

```
SELECT(UPPER( _____ ("Taj Mahal", 5));
```

  
(a) INSTR (b) STRING  
(c) MID (d) SUB

Continue on next page.....

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16. Match the following SQL functions with their purposes:

SQL Funtion		Description	
P	DISTINCT	1.	Groups rows based on a specific condition
Q	LIMIT	2.	Restricts the result to a certain number of rows..
R	ORDER BY	3.	Removes duplicate rows in the result.
S	GROUP BY	4.	Sorts the rows in ascending or descending order.

(a) P-3, Q-2, R-4, S-1

(b) P-2, Q-3, R-1, S-4

(c) P-4, Q-3, R-2, S-1

(d) P-2, Q-3, R-1, S-4

17. What will be the order of sorting in the following MySQL statement?

`SELECT emp_id, emp_name from Employee order by emp_id, emp_name:`

(a) Sorting { emp\_id, emp\_name}

(b) Sorting {emp\_name, emp\_id}

(c) Sorting {emp\_id} but not emp\_name

(d) None of these

18. A table “Transport” in a database has degree 3 and cardinality 8. What is the number of rows and columns in it?

(a) 3, 8

(b) 8, 3

(c) 11, 5

(d) 5, 11

19. Which of the following proves a website to be authentic?

(a) Padlock

(b) Digital certificate

(c) Starting with https://

(d) All of these

**Directions (Q.Nos. 20-21) Assertion and Reason based Questions.**

20. **Assertion (A) :** Data visualization refers to the graphical representation of information and data using visual elements like charts, graphs and maps etc.

**Reason (R) :** To install matplotlib library, we can use the command `pip install matplotlib`.

(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 but R is false.

(d) A is false but R is true.

21. **Assertion (A) :** The Internet is a world wide collection of networked computers, which are able to exchange information with each other very quickly.

**Reason (R) :** A gateway is a device that connects dissimilar networks.

(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 but R is false.

(d) A is false but R is true.

Continue on next page.....

**CLICK HERE TO SEE ANSWERS**



## SECTION - B

**22.** Intellectual property right means that the person who produces the information is the only one who can use that information. Now, explain the need of protecting intellectual property rights.

**23.** Rashmi is a travel agent, she has stored the data of all passengers in a table Travel(PNo, PName, TDate, Km, Coach). She has given the following command to display the name of the traveller whose travel date is in year 2016. She is encountering an error while executing the following query:

```
SELECT PName, TDate WHERE TDate= '2016' FROM Travel;
```

Help her in identifying the reason of the error and write the correct query by suggesting the possible correction(s).

**24.** Samadrita wants to find the outputs of the following queries using SUBSTR() and MOD() functions. Help her to find the outputs.

(i) `SELECT SUBSTR("testcases", -5, 3);`

(ii) `SELECT MOD(17.7, 3);`

**25.** Complete the given Python code to concatenate the DataFrames 'df1' and 'df2' vertically and display the resulting DataFrame.

```
import _____ as pd
df1 = pd.DataFrame({'A': [1, 2, 3],
                   'B' : [4, 5, 6]
df2 = pd.DataFrame({'A': [7, 8, 9],
                   'B' : [10, 11, 12]})
result_df = pd._____(_____)
print (result_df)
```

**26.** Answer the following questions based on the Series given below

```
import pandas as pd
list1=[1,2,3,4,5,6,7,8]
list2=['swimming', 'tt', 'skating', 'kho kho', 'bb', 'chess', 'football',
'cricket']
school=pd.Series(list1.index=list2)
```

What will be the output of the following statements?

(a) `print (school*2)`

(b) `print (school ["tt"])`

**27.** The Python code written below has syntactical errors. Rewrite the correct code and underline the corrections made.

```
import pandas as pd
data1 = {'ID': [1, 2, 3], 'Name':
        ['Riya', 'Preeti', 'Neeta']}
data2 = ['ID': [3, 4, 5], 'Age' [22,
                               30, 40]}

df1 = Pd.DataFrame(data1)
df2 = Pd.DataFrame(data2)
result = Pd.merge(df1, df2, on='ID',
                  how=inner)

print(result)
```

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28. Define Voice over Internet Protocol (VoIP). Also, explain its one advantage.

or

Explain any two uses of the Internet.

## SECTION - C

29. Write a Python code to create a DataFrame with appropriate column headings from the list given below:  
[[P01, 'Sachin Tendulkar', 'India'], [P02, 'Brian Lara', 'West Indies'], [P03, 'Wasim Akram', 'Pakistan'], [P04, 'Adam Gilchrist', 'Australia']]

30. Consider the following table BOOK.

Table : BOOK				
Code	Title	Author	Publication	Price
D001	Physics	Vikas Sharma	xxx	250
D002	Chemistry	Preeti Goyal	yyy	300
D003	Computer Science	Swati Rana	zzz	275
D004	English	Sanjeev Jain	aaa	150
D005	Mathematics	Rajiv Rastogi	bbb	400

Give the output of the following SQL commands on the basis of the above table BOOK.

- (i) `SELECT LEFT(Publication, 1) FROM BOOK WHERE Price>280;`
- (ii) `SELECT LCASE(Author) FROM BOOK;`
- (iii) `SELECT SUBSTR (Title, 2, 3) FROM BOOK WHERE Code = 'D002';`

31. Consider the given table Order.

Table : Order					
Orderno	Orderdate	CName	Cloc	Orders (in ₹)	Payments (in ₹)
1	12/02/2008	Avlon	Delhi	100000	90000
2	21/11/2008	Parason	Jaipur	230000	230000
3	15/10/2008	Trident	Raipur	120000	100000
4	13/01/2008	Avlon	Jaipur	240000	240000
5	17/07/2008	Trident	Delhi	340000	310000
6	16/06/2008	Nalco	Chennai	140000	140000

Write the SQL statements for the following based on above table Order.

- (i) Display the maximum and minimum orders placed for each city.
- (ii) Find the average of Payments received by Cloc Jaipur.
- (iii) List all orders given between 01/01/2008 to 12/10/2008

or

Which type of DIY SQL function accepts only numeric values? What is the use of such functions? Give the name of some functions of that type.

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32. Sumit has to prepare a project on “Swachh Bharat Shreshth Bharat”. He decides to get information from the Internet. He downloads three web pages (webpage1, webpage2, webpage3) containing information on the given topic.

1. He reads a paragraph from webpage1 and rephrased it in his own words. He finally pasted the rephrased paragraph in his project.
2. He downloaded three images from webpage2. He made a collage for his project using these images.
3. He also downloaded an icon from webpage3 and pasted it on the front page of his project report.

Now, answer the following questions based on above reading.

- (i) Step 1 an example of \_\_\_\_\_.
- (ii) Step 3 an act of \_\_\_\_\_.
- (iii) The process of getting web pages, images and files from a web server to local computer is called \_\_\_\_\_.

or

What is cyber stalking? Is cyber stalking a crime? How cyber stalking messages are different from ordinary spam?

## SECTION - D

33. Ms. Jennifer Christiano wants to create a DataFrame “Football” and perform some operations with it.

Football			
Index	Player	Club	Charges
0	Ronaldo	AC Milan	9.6
1	Pele	Real Madrid	10.5
2	Maradona	Royal Argentina	19.5

(Assume pandas is imported as pd)

- (a) Write the output for the following:
  - (i) `Football['Charges']/2`
  - (ii) `Football.size`
- (b) Help her to write the code for the following:
 

To set the index as ‘R’, ‘P’ and ‘M’, respectively for the three rows.
- (c) To change index Label of Football from 0 to Zero and 1 to One.

or (Option for part (c) only)

To make all the charges to 11.9

34. Army hospital Patna maintains the following table for its patients . They want certain outputs department wise - like the average charges , total number of patients department wise etc. As a database programmer, helps them to get the required outputs.

Table : Hospital			
Patld	Pname	Dept	Charges
P01	Amit	ENT	5600

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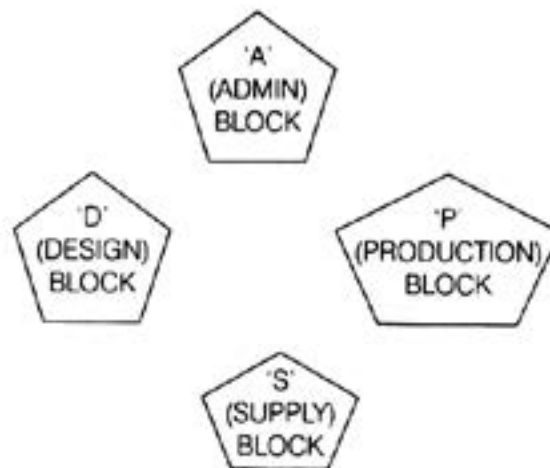


P02	Sunil	Eye	7000
P03	Rina	Ortho	2500
P04	Akash	Ortho	9000
P05	Amitabh	ENT	4000
P06	Preeti	Ortho	5000

- (i) Display each Dept and the total number of patients in each.
- (ii) Display the department wise average Charges
- (iii) Display the total number of unique departments.
- (iv) Display the minimum Charges among patients whose name starts with “S” or “R”.

## SECTION - E

35. “Anutulya Creations”-A start-up fashion house has set up its main centre at Kanpur, Uttar Pradesh for its dress designing, production and dress supplying activities. It has 4 blocks of buildings:



Distance between the various blocks:

A to D	50 m
A to P	60 m
A to S	110 m
D to S	60 m
P to S	50 m
P to D	150 m

Number of computers in each block:

Block A	20
Block D	80
Block P	15
Block S	8



Based on the above specifications, answer the following questions.

- (i) Out of LAN, WAN and MAN, what type of network will be formed, if we interconnect different computers of the campus? Justify.
- (ii) Suggest the topology, which should be used to efficiently connect various blocks of buildings within Kanpur centre for fast communication.  
Also, draw the cable layout for the same.
- (iii) Suggest the placement of the following device with justification.  
(a) Repeater                      (b) Switch/Hub
- (iv) Now-a-days, video-conferencing software is being used frequently by the company to discuss the product details with the clients. Name any one video conferencing software.  
Also, mention the protocol which is used internally in video conferencing software.
- (v) Suggest the suitable place (BLOCK) to house the server, with a suitable reason.

36. Carefully, observe the following table named 'Stock'.

Table : Stock				
Pid	PName	Category	Qty	Price
1	Keyboard	IO	15	450
2	Mouse	IO	10	350
3	Wifi-router	NW	5	2600
4	Switch	NW	3	3000
5	Monitor	O	10	4500
6	Printer	O	4	17000

Write SQL queries for the following

- (i) To display the records in decreasing order of Price.
- (ii) To display Category and category wise total Quantities of products.
- (iii) To display the Category and its average Price.
- (iv) To display Category and category wise highest Price of the products.
- (v) To display product names of the items with price below 200 and quantity less than 5.

or

Briefly explain the purpose of the following SQL functions.

- (i) POWER ()
- (ii) MOD ()
- (iii) NOW ()
- (iv) MONTH ()
- (v) LENGTH ()

37. Write a Pandas program to sort the DataFrame first by Name in descending order, then by 'Score' in ascending order.

Sample DataFrame :

```
exam_data={'Name': ['Abhi', 'Chirag',
                  'Tarun', 'Anjali', 'Mahi', 'Tushar',
                  'Shubham', 'Harsh', 'Vanshika',
                  'Kartik'],
          'Score': [12.5, 9, 16.5, np.NaN, 9, 20,
```

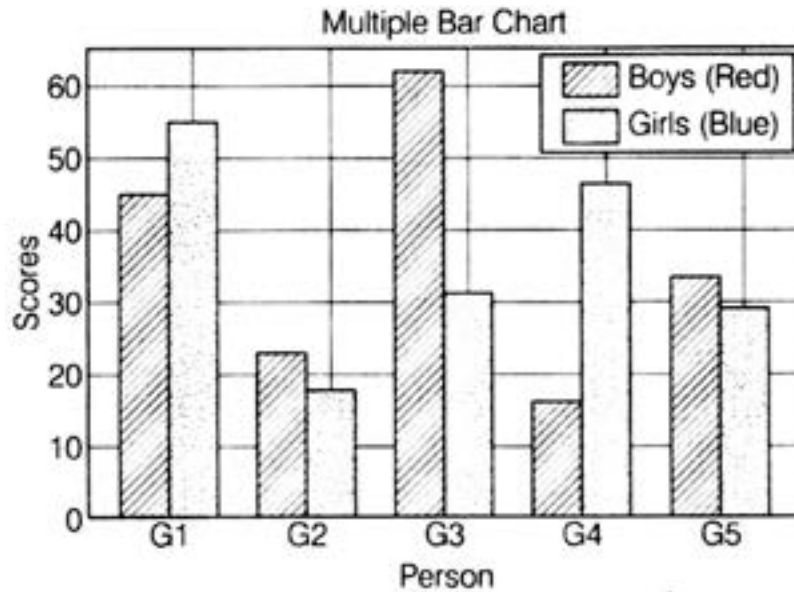
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```
14.5,np.NaN,8,19],  
'Attempts':[1,3,2,3,2,3,1,1,2,1],  
'Qualify': ['Yes', 'No', 'Yes', 'No', 'No', 'Yes', 'Yes', 'No', 'No', 'Yes']}  
labels = ['a', 'b', 'c', 'd', 'e',  
         'f', 'g', 'h', 'i', 'j']
```

or

Python provides the facility to draw multiple bar charts in same plot. Shrey used this feature and made multiple bar charts in same plot but by mistake the code of graph has deleted. Now, help him to write the code of given graph.



END





7. Jack wanted to create a data structure that would store the Name, Stream and Marks of his classmates, \_\_\_\_\_ data structure he should use.
- (a) Stack (b) Series  
(c) DataFrame (d) None of these
8. State whether the following statement is True or False:  
The `UNION` operator in SQL combines the result sets of two or more SELECT queries and removes duplicates by default.
9. The WWW is made up of the set of interconnected \_\_\_\_\_ that are linked together over the Internet.
- (a) electronic documents (b) web pages  
(c) files (d) All of these
10. Which of the following is/are the benefit(s) of e-Waste management?
- (a) Saving the environment (b) Creating jobs  
(c) Recovery of precious metals (d) All of these
11. In URL, `http://www.nodia.com/index.htm`, \_\_\_\_\_ component identifies the path of a web page.
- (a) `http` (b) `www.Nodia.com`  
(c) `/index.htm` (d) All of these
12. What will be returned by the following query?  
`SELECT ROUND(178.867, 2);`
- (a) 178.86 (b) 178.88  
(c) 178.87 (d) 179.00
13. Given below is a code,  
`import pandas as p  
Toys=p.Series([22,44,66,88,99])`  
The property to get the number of bytes occupied by the series is
- (a) T (b) nbytes  
(c) shape (d) index
14. Choose the correct query to display the left most 4 letters from the customers who lives in Mumbai or Bangalore.
- (a) `mysql>SELECT LEFT(CNAME)FROM Customers WHERE CITIES = 'MUMBAI' OR CITIES = 'BANGLORE' ;`  
(b) `mysql>SELECT LEFT(CNAME,3)FROM Customers WHERE CITIES = 'MUMBAI' OR CITIES = 'BANGLORE' ;`  
(c) `mysql>SELECT LEFT(CNAME, 4)FROM Customers WHERE CITIES = 'MUMBAI' OR 'BANGLORE' ;`  
(d) `mysql>SELECT LEFT(CNAME, 4)FROM Customers WHERE CITIES = 'MUMBAI' OR CITIES = 'BANGLORE' ;`

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15. Which of the following function will display the specified number of characters from a particular position of the given string?  
 (a) MID( ) (b) SUBSTR( )  
 (c) Both (a) and (b) (d) None of these

16. Match the following SQL functions with their purposes:

SQL Function		Description	
P	DISTINCT	1.	Groups rows based on a specific condition
Q	LIMIT	2.	Restricts the result to a certain number of rows..
R	ORDER BY	3.	Removes duplicate rows in the result.
S	GROUP BY	4.	Sorts the rows in ascending or descending order.

- (a) P-3, Q-2, R-4, S-1 (b) P-2, Q-3, R-1, S-4  
 (c) P-4, Q-3, R-2, S-1 (d) P-2, Q-3, R-1, S-4

17. \_\_\_\_\_ is not a malware.  
 (a) Computer virus (b) Spam  
 (c) Worm (d) Application Software

18. The default date format is  
 (a) MM-DD-YYYY (b) YYYY-MM-DD  
 (c) DD-MM-YYYY (d) None of these

19. Which of the following function returns only the day number from month of selected date?  
 (a) DAY(date) (b) DAYNO(date)  
 (c) DAY\_NUMBER(date) (d) DATE(date)

**Directions (Q.Nos. 20-21) : Assertion and Reason based Questions.**

20. **Assertion (A)** : Elements of Series can be accessed using positional index.  
**Reason (R)** : Positional index values ranges from 1 to n, if n is the size of the series.  
 (a) Both A and R are true and R is the correct explanation of A.  
 (b) Both A and R are ture but R is not the correct explanation of A  
 (c) A is true but R is false.  
 (d) A is false but R is true.

21. **Assertion (A)** : The bus topology is prone to data collisions.  
**Reason(R)** : In a bus topology, all devices share the same communication medium, leading to data collisions when two devices transmit data simultaneously  
 (a) Both A and R are True and R is the correct explanation of A.  
 (b) Both A and R are True and R is the not correct explanation of A.  
 (c) A is true but R is False.  
 (d) A is False but R is true.



## SECTION - B

22. Complete the given Python code: Create a pandas Series from a scalar value '10' and display the last 3 elements of the Series.

```
import _____ as pd
series_data = pd.Series(_____)
print(series_data._____(_____))
```

23. What is data protection? List two ways to protect your data.

24. The Python code written below has syntactical errors. Rewrite the correct code and underline the corrections made.

```
import pandas as pd
data = {Name ['Riya', 'Preeti',
             'Neeta'], 'Age': [25, 30, 22]}
df = pd.DataFrame(Data)
for row in df:
    print(row)
```

25. What will be the output of the given code?

```
import pandas as pd
s = pd.Series([1,2,3,4,5],
index=['akram', 'brijesh', 'charu',
       'deepika', 'era'])
print(s['charu'])
```

26. Mr. Roy is a manager in a hotel and wants to find out some data from a table, where he maintains the hotel records. He is not very expert with SQL commands and functions. Help him to write the queries.

Table : Hotel				
Room Id	C Name	Room Type	Dt of Arrival	Charges
R1	Ritesh	AC	2016-09-09	1800
R2	Suman	Deluxe	2020-08-01	2000
R3	Abhi	General	1995-04-05	3000
R4	Ram	AC	1994-02-02	2500
R5	Nitin	Deluxe	NULL	7000

- (i) Display count of the different room types from the table Hotel.  
(ii) Display the average room charges of "AC" rooms.

27. Navya has just created a website for her company and now need to host it. Briefly discuss the role of a web server in hosting a website.

**or**

Write one advantage each of star and bus topology used in networking. Draw a network layout of bus topology to connect six computers.

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28. What is the purpose of GROUP BY clause in MySQL? How is it different from ORDER BY clause?

## SECTION - C

29. Rahul has written a code with a DataFrame and a CSV file “Emp.csv” containing records of employees as follows:

Index	Eno	Ename	Eage	Esal
0	1	Ritesh	15	5600
1	2	Aakash	16	17000
2	3	Sumit	17	12500
3	4	Ria	20	18000

Write the Python code to read the data from the CSV file, display its first two records and then rewrite the data to a new CSV file.

30. Consider the following table Games. Write SQL commands for the following statements.

Table : Games					
G Code	Game Name	Type	Number	Prize Money	Schedule Date
101	Carom Board	Indoor	2	5000	23/01/2004
102	Badminton	Outdoor	2	12000	12/12/2003
103	Table Tennis	Indoor	4	8000	14/02/2004
105	Chess	Indoor	2	9000	01/01/2004
108	Lawn Tennis	Outdoor	4	25000	19/03/2004

- (i) To display the details of those Games, which are having PrizeMoney more than 7000.
- (ii) To display sum of PrizeMoney for each Type of Games.
- (iii) To display the total number of games available in the above table Games.

or

Naina works for M/s Anish Steels Ltd. She has written following statements , but is not able to understand the outputs. Explain her the working of these statements and produce the outputs.

- (i) `SELECT INSTR('computerscience', 'sc');`
- (ii) `SELECT MID('funandfood', 3, 4);`
- (iii) `SELECT ROUND(1334.99);`

31. List the guidelines to avoid plagiarism.

or

What are the psychological problems related to the usage of technology?

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**CLICK HERE TO SEE ANSWERS**



32. Write a output for SQL queries (i) to (iii), which are based on the table Student given below:

Table : Student						
RollNo	Name	Class	DOB	Gender	City	Marks
1	Nanda	X	06-06-1995	M	Agra	551
2	Saurabh	XII	07-05-1993	M	Mumbai	462
3	Sonal	XI	06-05-1994	F	Delhi	400
4	Trisla	XII	08-08-1995	F	Mumbai	450
5	Sohan	XII	08-10-1995	M	Delhi	369
6	Marisla	XI	12-12-1994	F	Dubai	250
7	Neha	X	08-12-1995	F	Moscow	377
8	Nishant	X	12-06-1995	M	Moscow	489

- (i) `SELECT COUNT(*), City FROM Student GROUP BY City HAVING COUNT(*)>1;`  
 (ii) `SELECT MAX(DOB),MIN(DOB) FROM Student;`  
 (iii) `SELECT NAME,GENDER FROM Student WHERE City= "Delhi";`

## SECTION - D

33. Jacqueline has created the following DataFrame consisting of data of houses of a school and the number of boys in the houses, shown as follows. She wants to perform certain operation on the data set. Help her with the correct actions.

House			
Index	Housename	Location	Boys
0	Ganga	East	20
1	Yamuna	West	30
2	Saraswati	North	56

- (a) What will be the output of the following code?  
 (i) `print(House.shape)`  
 (ii) `House.pop("Location")`  
`print(House)`
- (b) She wants the "Housename" column to be the index of the DataFrame. What statement she should write?
- (c) To display total number of elements in the dataframe.

or(Option for part (c) only)

She wants to see the number of columns. Write the statement which will display the number of columns.

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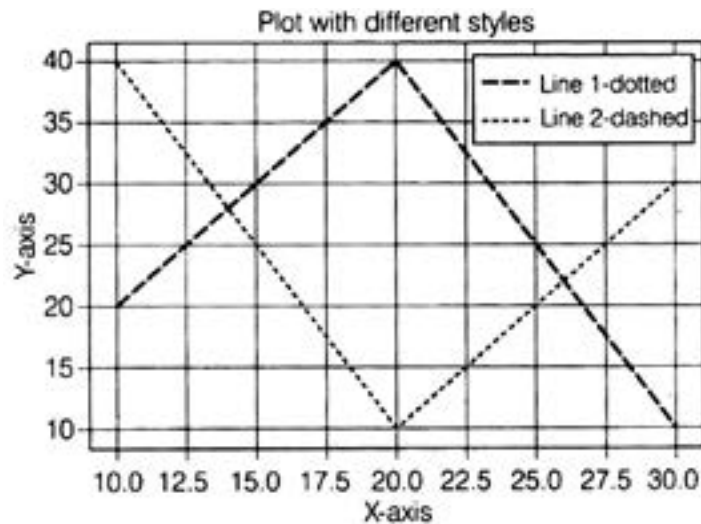
34. Consider the table given below and answer the questions

Table : EMP					
EMP NO	E NAME	SEX	DOB	DOJ	DEPT CODE
101	Ram	M	1990-05-02	2012-01-02	D01
102	Aman	M	1992-03-01	2013-02-04	D03
103	Diya	F	1989-01-04	2011-01-06	D04
106	Sandeep	M	1993-04-06	2015-01-03	D02
105	Varun	M	1995-07-08	2014-02-04	D05
107	Komal	F	1994-03-02	2013-03-06	D01
104	Priyanka	F	1995-02-01	2012-02-07	D01

- (i) To display EMPNO, ENAME, SEX from the table EMP in descending order of EMPNO
- (ii) To display the records of all female employee from the table EMP.
- (iii) To display the EMPNO and ENAME of those employees from the table EMP who are joined between '2011-01-01' and '2013-01-01'.
- (iv) To count the number of male employees who have born before '1994-01-01'.

## SECTION - E

35. Write the Python code for the following graph which display the different style multiline in same plot.

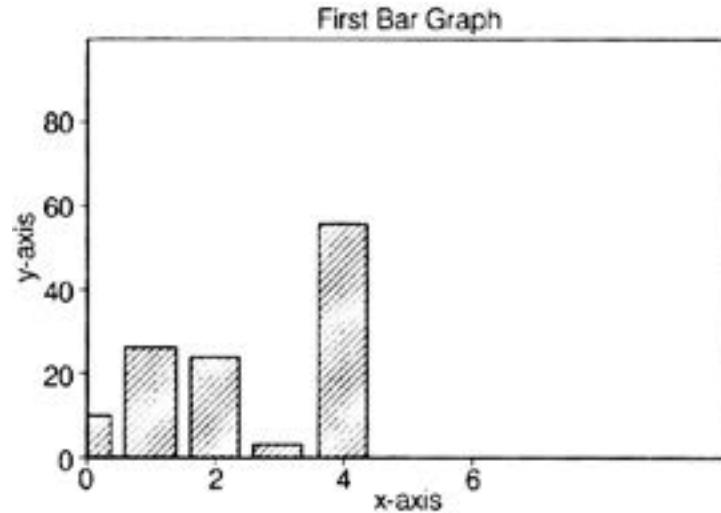


or

Observe the below figure and write the Python code to get the output.

**CLICK HERE TO SEE ANSWERS**





36. Given below a table Bookhouse, write SQL query for part (i) to (v).

Table : Bookhouse						
No	Title	Author	Subject	Publisher	Qty	Price
1	Data Structure	Lips chute	DS	McGraw	4	217.00
2	DOS Guide	Nortron	OS	PHI	3	175.00
3	Turbo C++	Robert Lafore	Prog	Galgotia	5	270.00
4	Dbase Dummies	Palmer	DBMS	PustakM	7	130.00
5	Mastering Windows	Cowart	OS	BPB	1	225.00
6	Computer Studies	French	FND	Galgotia	2	75.00
7	COBOL	Stern	Prog	John W	4	1000.00
8	Guide Network	Freed	NET	Zpress	3	200.00
9	Basic for Beginners	Norton	Prog	BPB	3	40.00
10	Advanced Pascal	Schildt	Prog	McGraw	4	350.00

- (i) Display Publisher wise total stock value (Qty \* Price).
- (ii) Display Title of the book which is costliest.
- (iii) Display number of books and total Price for each type of Publisher.
- (iv) Display all the books where subject starts with "D" and Qty is less than 3.
- (v) Display all information of books whose Price starts with 2.

**or**

Write the uses of following MySQL functions with one example of each.

- (i) MID
- (ii) LEFT( )
- (iii) TRIM()
- (iv) LCASE()
- (v) MAX()

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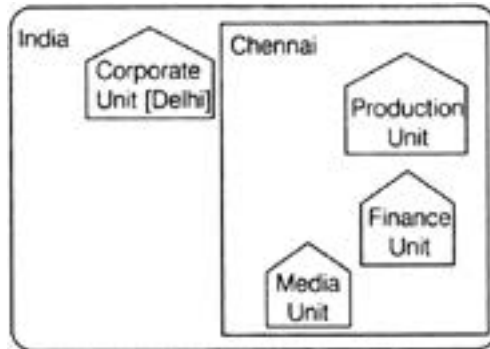
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37. China Middleton Fashion is planning to expand their network in India, starting with two cities to provide infrastructure for distribution of their products.

The company has planned to setup their main office in Chennai at three different locations and have named their offices as Production Unit, Finance Unit and Media Unit. The company has its Corporate Unit in Delhi.

A rough layout of the same is as follows:



Approximate distance between these units is as follows:

From	To	Distance
Production Unit	Finance Unit	70 m
Production Unit	Media Unit	15 m
Production Unit	Corporate Unit	2112 m
Finance Unit	Media Unit	15 m

In continuation of the above, the company experts have planned to install the following number of computers in each of these units.

To	Distance
Production Unit	150
Finance Unit	35
Media Unit	10
Corporate Unit	30

- (i) Suggest the kind of network required (out of LAN, MAN, WAN) for each of the following units.
  - (a) Production Unit and Media Unit
  - (b) Production Unit and Finance Unit
- (ii) Which of the following devices will you suggest for connecting all computers with each of their office units?
  - (a) Switch/Hub
  - (b) Modem
  - (c) Telephone
- (iii) Suggest a cable/wiring layout for connecting the company’s local office units located in Chennai.
- (iv) After setting up the lab and Internet in the lab, company now requires to enable videos and animations to be played on the web browser for it’s employees. Which browser tool /service can be used for the same?
- (v) Give an example of Open Source web browser.



**Sample Paper 08**  
**INFORMATICS PRACTICES (065)**  
**CLASS XII 2024-25**

**Time: 3 Hours**

**Max. Marks: 70**

**General Instructions:**

1. Please check 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 4 questions (29 to 32). Each question carries 3 Marks.
  7. Section D consists of 2 case study type questions (33 to 34). Each question carries 4 Marks.
  8. Section E consists of 3 questions (35 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**

1. State whether the following statement is True or False:  
In Pandas, `.sort_values()` can only sort a DataFrame in ascending order.
2. Which function returns the length of the string in bytes?  
(a) `LENGTH ( )` (b) `DATE ( )`  
(c) `TIME ( )` (d) `MATH ( )`
3. Which of the following function is used to create DataFrame?  
(a) `DataFrame( )` (b) `NewFrame( )`  
(c) `CreateDataFrame( )` (d) None of these
4. A software which is available for free and the code is open for all, it is called as \_\_\_\_\_.  
(a) Proprietary software (b) Free and open source software  
(c) Free software (d) None of these
5. In India, e-Waste management assumes greater significance because  
(a) generation of own e-Waste  
(b) dumping of e-Waste from developed countries  
(c) lack of awareness  
(d) All of these

Continue on next page.....

**CLICK HERE TO SEE ANSWERS**



6. As soon we get any good news from any source in social media:
- (a) We should forward to many people so that they can be benefited.
  - (b) We should never forward to anyone.
  - (c) We should confirm the news from any reliable source before forwarding.
  - (d) We should forward to our family and friends only.
7. Abhishek uses computer and mobile for his personal use. He uploaded one video on his youtube channel, where he used one background music downloaded from somewhere on Internet, he may be violating \_\_\_\_\_.
- (a) copyright
  - (b) intellectual property right
  - (c) plagiarism
  - (d) None of these
8. State whether the following statement is True or False:  
SQL's `COUNT(\*)` function returns the total number of rows, including rows with NULL values.
9. \_\_\_\_\_ is a set of moral principles that governs the behaviour of a group or an individual and regulates the use of computers.
- (a) Copyright
  - (b) Computer ethics
  - (c) Property rights
  - (d) Privacy law
10. Write the output of the following SQL command.  
`SELECT ROUND(47.89);`
- (a) 47.88
  - (b) 47.8
  - (c) 48.0
  - (d) 50
11. Identify single-row functions of MySQL amongst the following]
- (a) TRIM()
  - (b) MAX()
  - (c) ROUND()
  - (d) Both (a) and (c)
12. Method or function to add a new row in a DataFrame is \_\_\_\_\_.
- (a) .loc()
  - (b) .iloc()
  - (c) join()
  - (d) add()
13. `series1 = pd.Series({'India' : 'New Delhi', 'UK' : 'London', 'Japan' : 'Tokyo'})`  
`print(series1)`  
Above code is an example of
- (a) creating series from dictionary
  - (b) creating series from scalar values
  - (c) creating series from an array
  - (d) creating series from tuple
14. \_\_\_\_\_ refers to a small, single site network.
- (a) DSL
  - (b) RAM
  - (c) WAN
  - (d) PAN

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15. \_\_\_\_\_ network topology in which there are bi-directional links between each possible node.
- (a) Ring (b) Mesh  
(c) Tree (d) None of these

16. Match the following SQL functions with their purposes:

SQL Funtion		Description	
P	DISTINCT	1.	Groups rows based on a specific condition
Q	LIMIT	2.	Restricts the result to a certain number of rows..
R	ORDER BY	3.	Removes duplicate rows in the result.
S	GROUP BY	4.	Sorts the rows in ascending or descending order.

- (a) P-3, Q-2, R-4, S-1 (b) P-2, Q-3, R-1, S-4  
(c) P-4, Q-3, R-2, S-1 (d) P-2, Q-3, R-1, S-4

17. Which of the following is not a Mathematical function?

- (a) LENGTH() (b) POWER()  
(c) MOD() (d) ROUND()

18. Which SQL clause is used to restrict the rows returned by a query?

- (a) SELECT (b) ORDER BY  
(c) WHERE (d) GROUP BY

19. Consider a table DOCTOR(ID, DocName, Department, DOJ, Gender, Salary). Which of the following query will display the names and salaries of doctors in descending order of salaries.

- (a) SELECT DocName, Salary FROM DOCTOR ORDER BY Salary DESC;  
(b) SELECT DocName, Salary FROM DOCTOR WHERE ORDER BY Salary ASC;  
(c) SELECT DocName, Salary FROM DOCTOR ORDER BY Salary ASC;  
(d) SELECT DocName, Salary FROM DOCTOR WHERE ORDER BY Salary DESC;

**Directions (Q.Nos. 20-21) Assertion and Reason based Questions.**

20. **Assertion (A)** : Star topology is a network layout in which all devices are connected to a central hub or switch.

**Reason (R)** : The central hub acts as a central point of communication and controls the flow of data between devices.

- (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 and R is true.

Continue on next page.....

**CLICK HERE TO SEE ANSWERS**



**21. Assertion (A) :** Sorting is the operation to arrange data in a specific order, `sort_values()` function used to perform the operation.

**Reason (R) :** Row wise sorting cannot be performed in Python Data Frame objects.

- (a) Both A and R are true and R is the correct explanation of A.  
 (b) Both A and R are true and R is not the correct explanation of R.  
 (c) A is true but R is false.  
 (d) Both A and R are false.

## SECTION - B

**22.** Given a DataFrame created as:

```
import pandas as p
Stud=p.Series({'Name': ['Ria',
  'Priya', 'Jack'], 'Eco': [56, 67, 89],
  'IP': [90, 87, 45], 'Eng': [58, 78, 32]})
Studdf=p.DataFrame(Stud)
print(Studdf[0:2])
```

What will be the output of the above code?

**23.** The Python code written below has syntactical errors. Rewrite the correct code and underline the corrections made.

```
import pandas as pd
data1 = {ID [1, 2, 3], Name [Riya,
  Preeti, Neeta]}
data2 = {ID [4, 5, 6], Name [Siya,
  Pratik, Neeraj]}
df1 = pd.DataFrame(data1)
df2 = pd.DataFrame(data2)
result = pd.concat(df1, df2)
print()
```

**24.** Complete the given Python code to calculate the mean value of the 'price' column in the DataFrame 'df'.

```
import _____ as pd
df = pd.DataFrame('item' : ['A', 'B',
  'C', 'D'], 'price': [50, 30,
  45, 20])
mean_price = df['price']_____()
print(mean_price)
```

**25.** Which SQL function is used to remove leading and trailing spaces from a character expression X, where X = 'LEARNING ###MYSQL####' (# denotes a blank space) and also give the output of X.

**26.** Which type of MySQL function accepts only numeric values? Give the name of some functions of that type.

**27.** What do you mean by spyware?]

Continue on next page.....

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28. What do you mean by network topology? Write different types of topology.

or

Mr. Chandervardhan is not able to identify the domain name in the given URL. Identify and write it for him. Also, explain what is URL?

http://www.cbse.in/aboutus.htm

## SECTION - C

29. Write the code to create the above Data Frame:

	Year	Month	Passengers
0	2010	Jan	25
1	2010	Mar	50
2	2012	Jan	35
3	2010	Dec	55
4	2012	Dec	65

30. Abhishek uses computer and mobile for his personal use. Study the following cases and answer the questions given below.

- (a) Once he got the message in Whatsapp that CBSE is announcing the result of class XII tomorrow at 12:00 pm. He forwarded the message to his few friends. But later, he came to know that no such announcement was there in CBSE official website. In this case, he violated \_\_\_\_\_.
- (b) He is getting abuse messages from an unknown number due to which he is thinking of quarreling with that person. The unknown person can be called as \_\_\_\_\_.
- (c) He registered himself in one website by giving his email id and phone number he is leaving \_\_\_\_\_.

or

Write some symptoms of a malware attack.

31. Consider the following DataFrame df :

	Code	Name	Price	Qty	Discount
0	C1	ABC	5500	10	10
1	C2	XYZ	4500	8	5
2	C3	PQR	5200	12	8
3	C4	MNO	3000	9	15
4	C5	LMN	5500	11	12

(i) Write down the command that will give the following output.

Code	C1
Name	ABC
Price	3000
Qty	8

**CLICK HERE TO SEE ANSWERS**



Discount	5
dtype : object	

- (ii) Find the most repeat value of a given set of number of DataFrame.  
 (iii) To sort the index label of DataFrame df in descending order.

32. Mr. Manav, a database administrator in “Global Educational and Training Institute” has created following table named “Training” for the upcoming training schedule:

Table : Training					
Training_Id	Name	Email Id	Topic	City	Fee
ND01	Mr. Rajan	raj@gmail. corn	Cyber Security	New Delhi	10000
GU01	Ms. Urvashi	urv@yahoo.com	ICT in Education	Gurugram	15000
FD01	Ms. Neena	neenarediff.com	Cyber Security	Faridabad	12000
ND02	Mr. Vinay	NULL	ICT in Education	New Delhi	13000
GU02	Mr. Naveen	nav@gmail.com	Cyber Security	Gurugram	NULL

Predict the output of the following queries:

- (i) `SELECT SUBSTR(City, 2, 4) FROM Training WHERE Topic!= 'Cyber Security';`  
 (ii) `SELECT NAME FROM Training WHERE INSTR (Email_Id, '@')=0;`  
 (iii) `SELECT Topic , COUNT(*) FROM Training GROUP BY Topic;`

or

Shanya Kumar is working with the following table Customers:

Table : Customers		
CNO	CNAME	CITIES
C1	SANYAM	DELHI
C2	SHRUTI	DELHI
C3	MEHER	MUMBAI
C4	SAKSHI	CHENNAI
C5	RITESH	INDORE
C6	RAHUL	DELHI
C7	AMEER	CHENNAI
C8	MINAKSHI	BANGLORE
C9	ANSHUL	MUMBAI

Write the queries for the following:

- (i) To display the city names in lower case letter whose CNO is either C5 or C9.  
 (ii) To display the length of Customer’s name for those Customers whose NAME end with R or L.  
 (iii) To display the Customer’s name and their respective CITIES merged together for all the Customers whose CNO is ending with 8.

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## SECTION - D

33. Consider the following table named “Product”, showing details of products being sold in a grocery shop.

<b>Table : Product</b>			
<b>PCode</b>	<b>PName</b>	<b>UPrice</b>	<b>Manufacture</b>
P01	Washing Powder	120	Surf
P02	Tooth Paste	54	Colgate
P03	Soap	25	Lux
P04	Tooth Paste	65	Pepsodent
P05	Soap	38	Dove
P06	Shampoo	245	Dove

Write SQL queries for the following and output(s) produced by executing the following queries on the basis of the information given above in the table Product.

- (i) Create the table Product with appropriate data types and constraints.
- (ii) Identify the PRIMARY KEY in table Product.
- (iii) List the Product Code, product Name and Price in with their Product Name for all Dove Manufacture.
- (iv) Increase the Price by 12 per.cent for all the products manufactured by Dove.

34. Mr. Krishnamurthy, who is a new user of Python Pandas, has created the following Series “Electrical” carrying names of electrical appliances as values and their wattage as the index. He wants to perform certain operations on the Series . You are supposed to help him in writing the commands :

<b>Electrical</b>	
<b>Index</b>	<b>Name</b>
12W	LED
200W	Fan
1000W	Electric Iron
1200W	Rice Cooker

- (i) He wants to change the index of Electrical series “LED” element to “A”.
- (ii) To display the record of ‘Fan’.
- (iii) Remove dataset with index 1000 W.

**or (Option for part (iii) only)**

Display the last rows of the dataset.

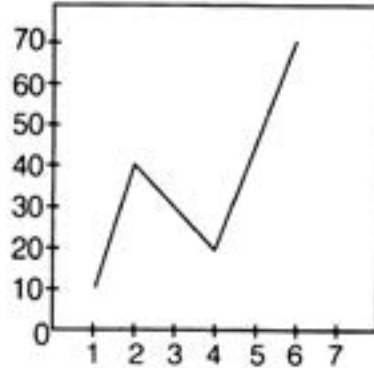
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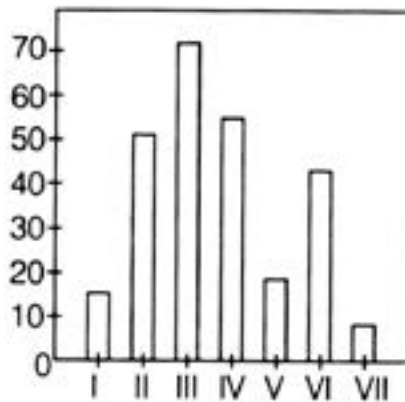
## SECTION - E

35. Consider the following graph. Write the code to plot it.



or

Draw the following bar graph representing the quantity of items in each month.



36. Consider the following table Graduate and write SQL commands for (i) to (v).

Table : Graduate					
SNo	Name	Stipend	Subject	Average	Div
1	Karan	400	Physics	68	1
2	Divakar	450	Computers	68	1
3	Divya	300	Chemistry	62	2
4	Arun	350	Physics	63	1
5	Sabina	500	Mathematics	70	1
6	John	400	Chemistry	55	2
7	Robert	250	Physics	64	1
8	Rubina	450	Mathematics	68	1
9	Vikas	500	Computers	62	1
10	Mohan	300	Mathematics	57	2

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- (i) List the Names of those students who obtained Div 1.
- (ii) Display a report, listing Name, Stipend, Subject and amount of stipend received in a year assuming that the Stipend is paid every month.
- (iii) Display first three characters of student Name where/whose SNo is 7.
- (iv) Display the student Names having 2nd division.
- (v) Display division wise Name of students in alphabetical order.

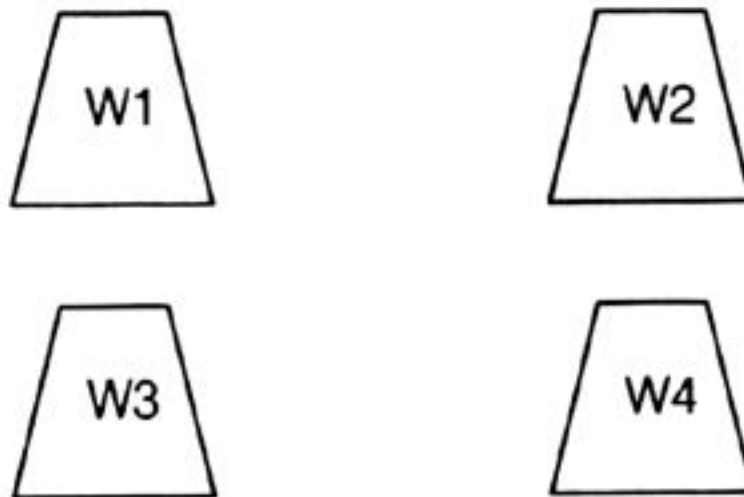
or

Write SQL queries for the questions from (i) to (v) on the basis of table Class.

No	Name	Stipend	Subject	AvgMark	Grade
01	Vikas	1200	Medical	67	B
02	Boby	1400	Humanities	78.4	B
03	Tarun	1000	Medical	64.8	C
04	Varun	1600	Non-medical	84	A
05	Atul	1800	Non-medical	92	A

- (i) Select all the non-medical stream students from the table Class.
- (ii) Arrange the records of Class name wise.
- (iii) List the records whose grade is B or C.
- (iv) Insert the new row with the following data. (06, 'Jack', 2800, 'Humanities', 98, 'A')
- (v) Identify the attribute to be best suitable for primary key.

37. A company in Mega Enterprises has 4 wings of buildings as shown in the diagram :



Centre to centre distances between various buildings:

- W3 to W1 – 50m
- W1 to W2 – 60m
- W2 to W4 – 25m
- W4 to W3 – 170 m
- W3 to W2 – 125 m
- W1 to W4 – 90 m

**CLICK HERE TO SEE ANSWERS**



Number of computers in each of the wing:

W1	–	150
W2	–	15
W3	–	15
W4	–	25

Computers in each wing are networked but wings are not networked. The company has now decided to connect the wings also.

- (i) Suggest a most suitable cable layout for the above connections.
- (ii) Suggest the most appropriate topology of the connection between the wings.
- (iii) Suggest the placement of the following devices with justification, if the company wants minimised network traffic.
  - (a) Repeater
  - (b) Hub/Switch
- (iv) Expand the following terms:
  - (a) HTTP
  - (b) TCP/IP
- (v) Suggest the suitable wing to house the server.

END



**Sample Paper 09**  
**INFORMATICS PRACTICES (065)**  
**CLASS XII 2024-25**

**Time: 3 Hours**

**Max. Marks: 70**

**General Instructions:**

1. Please check 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 4 questions (29 to 32). Each question carries 3 Marks.
  7. Section D consists of 2 case study type questions (33 to 34). Each question carries 4 Marks.
  8. Section E consists of 3 questions (35 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**

1. State whether the following statement is True or False:  
The `Pandas.Series` object allows storing and manipulating one-dimensional data with an index.
2. The MySQL function returns the specified number of characters from a particular position of a given string.  
(a) MID () (b) SUBSTRING ()  
(c) SUBSTR () (d) All of these
3. What is a correct syntax to return the values of first row of a Pandas DataFrame? Assuming the name of the DataFrame is dfRent.  
(a) dfRent[0] (b) dfRent.loc[1]  
(c) dfRent.loc[0] (d) dfRent.iloc[1]
4. In \_\_\_\_\_, users share their activities intentionally like social media activities, online chatting.  
(a) Passive digital footprint (b) Active digital footprint  
(c) Both (a) and (b) (d) None of these
5. \_\_\_\_\_ network is formed, when you connect two mobiles using bluetooth to transfer a picture file.  
(a) LAN (b) MAN  
(c) PAN (d) WAN
6. Geometric arrangement of devices on the network is called \_\_\_\_\_.  
(a) topology (b) protocols  
(c) media (d) LAN

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7. \_\_\_\_\_ is an act of copying another person's idea, words or work and pretend that they are our own.
- (a) Copyright (b) Virus  
(c) Plagiarism (d) IPR
8. State whether the following statement is True or False:  
The `ALTER TABLE` statement in SQL is used to modify the structure of an existing table.
9. What will be the output of the given code?
- ```
import pandas as pd
s = pd.Series([1,2,3,4,5]
index=['akram'. 'brijesh'. 'charu'.
        'deepika'. 'era'])
print(s['charu'])
```
- (a) 1 (b) 2  
(c) 3 (d) 4
10. Which of the following is the correct syntax of LCASE() function?
- (a) LCASE (row\_name) (b) LCE (column\_name)  
(c) LCASE (str/column\_name) (d) None of these
11. In the given query which keyword has to be inserted?
- ```
INSERT INTO employee _____ (1002,
                                "Kausar", 2000);
```
- (a) Table (b) Values  
(c) Relation (d) Field
12. Which aggregate function returns the count of all rows in a specified table?
- (a) SUM () (b) DISTINCT ()  
(c) COUNT () (d) None of these
13. Abdul deleted all his chats from all his social media accounts and he thinks that all his traces are deleted completely. Is he right in,thinking so?
- (a) Yes (b) No  
(c) May be (d) Not sure
14. Which of the following SQL statement will give output as 190.5 after execution?
- (a) SELECT ROUND(190.52,0); (b) SELECT ROUND(190.52, -1);  
(c) SELECT ROUND(190.52,2); (d) SELECT ROUND(190.52,1);
15. Feasible method(s) to manage e-Waste.
- (a) Reducing (b) Reusing  
(c) Recycling (d) All of these

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16. Match the following SQL functions with their purposes:

SQL Funtion		Description	
P	AVG()	1.	Calculate the average value of a column.
Q	COUNT()	2.	Returns the minimum value in a column.
R	MIN()	3.	Counts the number of rows.
S	SUM()	4.	Calculates the total of a column.

(a) P-1, Q-3, R-2, S-4

(b) P-2, Q-3, R-1, S-4

(c) P-4, Q-3, R-2, S-1

(d) P-2, Q-3, R-1, S-4

17. We should exhibit proper manners and etiquettes while being online. \_\_\_\_\_ is the right netiquette(s).

(a) Avoid cyber bullying

(b) Respect other's privacy

(c) No copyright violation

(d) All of these

18. head( ) function is used to return first \_\_\_\_\_ rows.

(a) n-1

(b) n+1

(c) n<sup>2</sup>

(d) n

19. Supriya has following code to insert a record in table 'salesman', but getting error. Help her in writing appropriate code.

```
INSERT EMP VALUES ('203', 'RAJU',
                    'DELHI');
```

(a) INSERT IN EMP VALUES ('203', 'RAJU', 'DELHI');

(b) INSERT EMP VALUES ('203', 'RAJU', 'DELHI');

(c) INSERT TO EMP VALUES ('203', 'RAJU', 'DELHI');

(d) INSERT INTO EMP VALUES ('203', 'RAJU', 'DELHI');

**Directions (Q.Nos. 20-21) : Assertion and Reason based Questions.**

20. **Assertion (A)** : Some time we want to combine the two DataFrame using the merge() function.

**Reason (R)** : Merging operation can be performed only with common values of column not with specific column.

(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 but R is false.

(d) A is false but R is true.

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**CLICK HERE TO SEE ANSWERS**



**21. Assertion (A) :** Web Browser is application software that allows us to view and explore information on the web.

**Reason (R) :** Web browser can show text, audio, video, animation and more. It is the responsibility of a web browser to interpret text and commands contained in the web page.

- (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 but R is false.
- (d) A is false but R is true.

## SECTION B

**22.** For avoiding the plagiarism, what guidelines should we follow?

**23.** Identify the following devices

- (i) An intelligent device that connects several nodes to form a network and redirects the received information only to intended node(s).
- (ii) A device that regenerates (amplifies) the received signal and re-transmits it to its destinations.

**or**

What is a modem?

**24.** Write a query to display the Sum, Average, Highest and Lowest marks of the students grouped by subject and sub-grouped by class.

**25.** Prachi has given the following command to obtain the highest marks:

```
SELECT MAX(Marks) FROM Student WHERE GROUP BY Class;
```

But she is not getting the desired result. Help her by writing the correct command.

**26.** Given a DataFrame gradedf:

```
import pandas as pd
gradedf=pd.DataFrame({'Name': ['Rashmi', 'Ani',
'Sunil', 'Becker'], 'Grade' : ['A',
'B', 'C', 'D']})
print (gradedf.iloc[0 : 2])
```

Find the output.

**27.** Complete the given Python code: to rename the column Age to Years in the DataFrame df and display the updated DataFrame.

```
import _____ as pd
df = pd.DataFrame({'Name': ['John',
'Alice', 'Bob'], 'Age': [25, 30,
22]})
df._____ (columns={'Age': _____})
print (df)
```

Continue on next page.....

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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)
df['Country'] = ['USA', 'Canada',
                'UK']
print(df)
```

## SECTION C

29. Given a DataFrame “Cellphone” containing the following data:

Index	ModelNo	Type	Brand
0	A22	4G	Samsung
1	N95	3G	Nokia
2	XPS12	2G	Apple

Write the Python statements to do the following:

- (i) To remove the first row
- (ii) The command that changes the Brand column to values ['Realme', 'Xiommi', 'Samsung']
- (iii) To save the dataframe to a CSV file “Mobiles.csv”

30. (i) Write a query to display current date on your system.  
 (ii) Display the position of occurrence of string “OR” in the string “CORPORATE LAWYER”  
 (iii) Mrs. Kumar is using table Students with the following columns:  
 Rno,AdmNo,Name,Aggregate, display all information of students in descending order of name and with ascending order of aggregate.

**or**

Which commands are used to control user’s privileges and how?

31. Predict the output of the following.  
 (i) SELECT POW(INSTR(“Success@  
                   dedication”, “@”), 2);  
 (ii) SELECT MONTH(“2020-11-15”)\*POW(2, 3);  
 (iii) LTRIM(“      Python Basics      ”)

32. Jack received a phone call stating that the call was from his Bank and they asked him his ATM card and PIN number. Also his colleague Jennifer was trying to see his key locations of fingers on the keyboard, while he was trying to open his E-mail account.

- (i) What this call may be \_\_\_\_\_?
- (ii) What is the symbol © used for ?
- (iii) What kind of network threat is Jennifer trying to do?

**or**

List the advantages of recycling the e-Waste.



## SECTION D

33. Given the following code, where a series is created storing population of some cities:

```
import pandas as pd
popseries=pd.Series([34567,890,450,
                    678,900])
```

(a) What will be the output of following commands?

(i) `print(popseries.tail(3).head(2))`

(ii) `print(popseries/2)`

(b) Write the Python statement to display the elements of dataset with value above 500.

(c) Write Python statement for the required output (5,)

or (Option for part (c) only)

Write Python statement to assign index to the series as 11,12,13,14,15.

34. Consider the following table MASTER.

Table : MASTER				
S No	Name	Age	Department	Salary
1	Shyam	21	Computer	12000
2	Shiv	25	Maths	15000
3	Rakesh	31	Hindi	14000
4	Sharmila	32	History	20000
5	Dushyant	25	Software	30000

(i) Write a command to update the salary of the employee to 40000, whose SNo is 3.

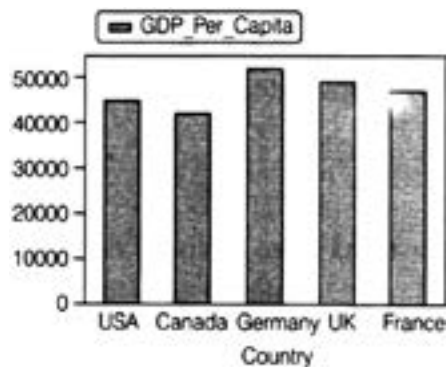
(ii) Write a query to add a column Date\_of\_Joining to the table MASTER.

(iii) Write a query to display Age and Department of those employees whose salary is greater than 12000.

(iv) Write a query to display Name whose Salary is more than 15000 and Department is Computer.

## SECTION E

35. Given the following bar graph, write the Python code to display same as.

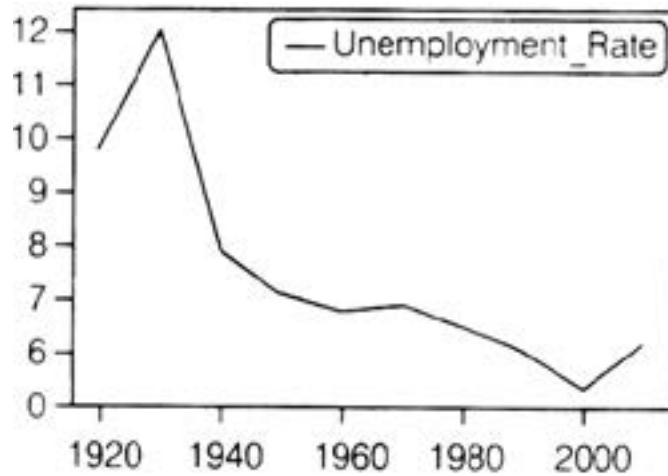


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or

Write the code to plot the below chart.



36. Write SQL queries for the questions from (i) to (v) on the basis of table Class.

Table : Class					
No	Name	Stipend	Subject	AvgMark	Grade
01	Vikas	1200	Medical	67	B
02	Boby	1400	Humanities	78.4	B
03	Tarun	1000	Medical	64.8	C
04	Varun	1600	Non-medical	84	A
05	Atul	1800	Non-medical	92	A

- (i) Select all the non-medical stream students from the table Class.
- (ii) Arrange the records of Class name wise.
- (iii) List the records whose grade is B or C.
- (iv) Insert the new row with the following data. (06, 'Jack', 2800, 'Humanities', 98, 'A')
- (v) Identify the attribute to be best suitable for primary key.

or

Name 5 major string functions with their purpose.

37. Granuda consultants are setting up a secured network for their office campus at Faridabad for their day-to-day office and web based activities. They are planning to have connectivity between 3 buildings and the head office situated in Kolkata.

Answer the questions (i) to (v) after going through the building positions in the campus and other details, which are given below.

Distance between various buildings	
Building RAVI to Building JAMUNA	120 m
Building RAVI to Building GANGA	50 m
Building GANGA to Building JAMUNA	65 m

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Faridabad Campus to Head Office	1460 km
---------------------------------	---------

<b>Number of computers</b>	
Building RAVI	25
Building JAMUNA	150
Building GANGA	51
Head Office	10

- (i) Suggest the most suitable place (i.e. Building) to house the server of this organization. Also, give a reason to justify your suggested location.
- (ii) Suggest a cable layout of connections between the building inside the campus.
- (iii) Suggest the placement of the following devices with justification
  - (a) Switch
  - (b) Repeater
- (iv) Consultancy is planning to connect its office in Faisalabad which is more than 10 km from head office. Which type of network will be formed?
- (v) State the use of HUB?

END

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**Sample Paper 10**  
**INFORMATICS PRACTICES (065)**  
**CLASS XII 2024-25**

**Time: 3 Hours**

**Max. Marks: 70**

**General Instructions:**

1. Please check 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 4 questions (29 to 32). Each question carries 3 Marks.
  7. Section D consists of 2 case study type questions (33 to 34). Each question carries 4 Marks.
  8. Section E consists of 3 questions (35 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**

1. State whether the following statement is True or False:  
The `Pandas.Series` object allows storing and manipulating one-dimensional data with an index.
2. The AVG() function in MySQL is an example of  
(a) MATH( ) function (b) TEXT( ) function  
(c) DATE( ) function (d) Aggregate function
3. Which of the following is not a type of Cyber crime?  
(a) Data theft (b) Forgery of online documents  
(c) Damage to data and systems (d) Installing antivirus for protection
4. Out of the following, which function cannot be used for customisation of charts in Python?  
(a) xlabel() (b) color()  
(c) title() (d) xticks()
5. A/An \_\_\_\_\_ is a unique data trace of a user's activities, actions, communications or transactions in digital media.  
(a) digital handprint (b) digital footprint  
(c) offline footprint (d) offline handprint
6. 'F' in FOSS stands for \_\_\_\_\_.  
(a) Free (b) Forever  
(c) Fire (d) Freezing

**CLICK HERE TO SEE ANSWERS**



7. \_\_\_\_\_ is a collection of independent computers and other hardware interconnected by communication channels.
- (a) Computer (b) Networking  
(c) Sharing (d) None of these
8. State whether the following statement is True or False:  
In SQL, `DELETE` and `DROP` are used interchangeably to remove data from a table.
9. Pandas series is \_\_\_\_\_.
- (a) two dimensional (b) three dimensional  
(c) one dimensional (d) multi-dimensional
10. While accessing the column from the DataFrame, we can specify the column name. In case column does not exist, which type of error it will raise?
- (a) Key error (b) Syntax error  
(c) Name error (d) Runtime error
11. \_\_\_\_\_ are the impact of e-Waste on the environment.
- (a) Soil pollution (b) Water pollution  
(c) Air pollution (d) Sound pollution
12. Write the output of the following statement.

Table : DEPARTMENT		
DEPT CODE	DEPTNAME	PLACE
D01	CSE	MUMBAI
D02	IT	KOLKATA
D04	MEDIA	DELHI
D03	HR	MUMBAI
D05	SALES	DELHI

SELECT COUNT (DISTINCT DEPTNAME) FROM DEPARTMENT;

- (a) 5 (b) 4  
(c) 3 (d) Error
13. Modulation and demodulation is performed by \_\_\_\_\_.
- (a) microwave (b) satellite  
(c) modern (d) gateway
14. Which of the following is not a violation of IPR?
- (a) Plagiarism (b) Copyright infringement  
(c) Patent (d) Trademark infringement

Continue on next page.....

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15. Consider the following query

```
SELECT * FROM employee ORDER BY salary _____, name _____;
```

To display the salary from greater to smaller and name in alphabetical order which of the following options should be used ?

- (a) Ascending, Descending
- (b) Asc, Desc
- (c) Desc, Asc
- (d) Descending, Ascending

16. Match the following SQL functions with their purposes:

SQL Funtion		Description	
P	INT	1.	Stores date values
Q	VARCHAR	2.	Stores integer values..
R	DATE	3.	Stores variable-length strings.
S	DECIMAL	4.	Stores precise numeric values with decimals..

- (a) P-3, Q-2, R-4, S-1
- (b) P-2, Q-3, R-1, S-4
- (c) P-4, Q-3, R-2, S-1
- (d) P-2, Q-3, R-1, S-4

17. If on '1990-01-22', it was Monday, what will be the output of following SQL command?

```
SELECT dayname ('1990-01-22')+1;
```

- (a) Error
- (b) 1
- (c) 7
- (d) Monday

18. In which function, NULL values are excluded from the result returned?

- (a) SUM()
- (b) MAX()
- (c) MIN()
- (d) All of these

19. In MySQL, Reena and Zebi are getting the following output of SELECT statement on a table Employee.

Reena	Zebi
Lucknow	Lucknow
Delhi	Delhi
Mumbai	Mumbai
Delhi	Kanpur
Kanpur	
Delhi	

Which keyword has Zebi used with a SELECT statement to get the above output?

- (a) COUNT
- (b) UNIQUE
- (c) DISTINCT
- (d) All of these

Continue on next page.....

**CLICK HERE TO SEE ANSWERS**



**Directions (Q.Nos. 20-21) Assertion and Reason based Questions.**

**20. Assertion (A) :** Pandas is a library of Python.

**Reason(R) :** Yes, we import pandas and can use functions of pandas like Series() and DataFrame() etc in Python.

- (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 but R is false.
- (d) A is false but R is true.

**21. Assertion (A) :** Internet is a global network that connects billions of computers across the world with each other and to the World Wide Web.

**Reason(R) :** Internet uses standard internet protocol suite (TCP/IP) to connect billions of computer users worldwide.

- (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 but R is false.
- (d) A is false but R is true.

## SECTION B

**22.** Complete the given Python code: to merge two DataFrames 'df1' and 'df2' based on the 'ID' column using Pandas.

```
import _____ as pd
df1 = pd.DataFrame({'ID': [1, 2, 3, 4], 'Name': ['John', 'Jane', 'Mike', 'Emily']})
df2 = pd.DataFrame({'ID' : [2, 4, 5, 6], 'Age' : [25, 30, 22, 28]})
merged_df = pd.merge(_____, _____, _____ = '_____', _____ = '____')
print(merged_df)
```

**23.** The Python code written below has syntactical errors. Rewrite the correct code and underline the corrections made.

```
import pandas as pd
data1 = {'A' : [1, 2, 3],
         'B': [4, 5, 6]}
data2 = {'A' : [7, 8, 9],
         'B': [10, 11, 12]}
df1 = Pd.dataFrame(data1)
df2 = Pd.dataFrame(data2)
result = Pd.Concat([df1, df2])
```

Continue on next page.....

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24. What is the web browser? Name any four web browsers.

or

Discuss the structure of an E-mail message in brief.

25. Write difference between degree and cardinality.

26. A series s1 is created as :

```
import pandas as p
s1=p.Series([1,2,3,4])
print(s1.hasnans)
```

Write the output of the above code.

27. What is cyber crime? Name two cyber crimes.

28. Shrey is using a table Student. It has following columns

RollNo, Name, Age, Subject

He wants to display highest Age of student in each subject.

He wrote the following statement

```
SELECT Subject, MAX (Age) FROM Student;
```

But he did not get the desired result. Rewrite the query with necessary changes to help him get the desired result.

## SECTION C

29. Consider the following DataFrame df.

	Code	Name	Price	Qty	Discount
0	C1	ABC	5500	10	10
1	C2	XYZ	4500	8	5
2	C3	PQR	5200	12	8
3	C4	MNO	3000	9	15
4	C5	LMN	5500	11	12

Write the Python statements for the following:

- To display the column labels of the DataFrame.
- To sort the index label of DataFrame df in descending order.
- To obtain the avg price of the given set of prices from the DataFrame.

30. A DataFrame df stores the details as (Code, Salary). Write a program to join it with a DataFrame df1 storing details as (Name, Designation, Department). Make sure that, all the rows from both the DataFrames are part of the resultant DataFrame.

Continue on next page.....

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31. Anil was using a standalone computer until last month. Since, he has connected his computer to a network he is facing problems like : slow computing, damaged files, etc.

Based on above reading answer the following questions

- Which action would keep him safe?
- State any two sources via which above problem spreads.
- Name any two softwares available in market to avoid above problems from spreading.

or

What are the possible damages caused by viruses?

32. Consider the table Teachers and write SQL query for (i) to (iii).

ID	Name	Department	Hire Date	Category	Gender	Salary
1	Tarun Nanda	Hindi	17-03-94	TGT	M	25000
2	Sanjay Sharma	English	12-02-90	PRT	M	20000
3	Nikhil Arora	Arts	16-05-80	PGT	M	30000
4	James Kaur	Science	16-10-89	TGT	M	25000
5	Jaspreet Sehgal	Science	01-08-90	PGT	F	22000
6	Siddharth Kapoor	English	10-02-80	PRT	M	21000
7	Sonali Khanna	Arts	02-09-94	TGT	F	27000
8	Mukul Roy	Computer	14-11-80	TGT	M	30000

- To display name and ID of teachers of PGT category.
- To display the names of female teachers of Hindi department.
- To display names, departments and hiring dates of all the teachers in ascending order of hiring date.

or

Rama is not able to change a value in a column to NULL. What constraint did she specify when she created the table? Give proper syntax of the constraint to be used.

## SECTION D

33. Given the following Python code:

```
import pandas as pd
color=['Blue', 'Green', 'Yellow',
      'Red']
newcolor=['Magenta', 'Cyan']
s1=pd.Series(color)
s2=pd.Series(newcolor)
```

- What will be the output of the following?
  - `print(s1.size+s2.size)`
  - `print(s1+s2)`
- Write Python statement for the following: To add the elements of s2 to the end of s1.
- To display the shape of both Series.

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or(Option for part (c) only)

To add the elements of s1 to a DataFrame df.

34. Consider the following table PROJECTS.

ID	ProjName	ProjSize	StartDate	EndDate	Cost
1	Payroll-MMS	Medium	2006-03-17	2006-09-16	60000
2	Payroll-ITC	Large	2008-02-12	2008-01-11	500000
3	IDMgmt-LITL	Large	2008-06-13	2009-05-21	300000
4	Recruit-LITL	Medium	2008-03-18	2008-06-01	50000
5	IDMgmt-MTC	Small	2007-01-15	2007-01-29	20000
6	Recruit-ITC	Medium	2007-03-01	2007-06-28	5000

Give output for (i) and (ii) and write statements for (iii) and (iv).

(i) `SELECT COUNT (DISTINCT Cost) FROM PROJECTS;`

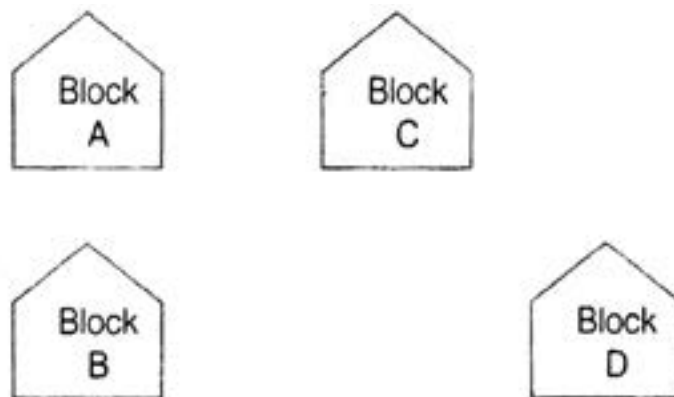
(ii) `SELECT MAX (Cost) FROM PROJECTS;`

(iii) To list ID, ProjName, ProjSize and Cost of all the projects in descending order of StartDate.

(iv) To display ProjName and Cost of projects that have cost in the range of 20000 to 50000 (both 20000 and 50000 included).

## SECTION E

35. Knowledge supplement organization has set up its new centre at Bangalore for its office and web based activities. It has 4 blocks of buildings as shown in the diagram below.



Centre to centre distances between various blocks

Block A to Block B	50 m
Block B to Block C	150 m
Block C to Block D	25 m
Block A to Block D	170 m
Block B to Block D	125 m

[CLICK HERE TO SEE ANSWERS](#)



Block A to Block C	90 m
--------------------	------

Number of Computers

Block A	25
Block B	50
Block C	125
Block D	10

- (i) Suggest a cable layout of connections between the blocks.
- (ii) Suggest the most suitable place (i.e. block) to house the server of this organization with a suitable reason.
- (iii) Suggest the placement of the following devices with justification.
  - (a) Repeater
  - (b) Hub/Switch
- (iv) The organization is planning to link its front office situated in the city in a hilly region, where cable connection is not feasible, suggest an economic way to connect it with reasonably high speed.
- (v) What is the use of gateway in networking?

36. In a database OFFICE, we have one table given below

Table : Garment				
GCode	Description	Price	FCode	ReadyDate
10023	Pencil Skirt	200	F03	19-Dec-10
10001	Formal Shirt	150	F01	12-Jan-10
10012	Informal Shirt	250	F02	06-Jan-10
10024	Baby Top	300	F03	07-Apr-09
10090	Tulip Skirt	350	F02	31-Mar-09
10019	Evening Gown	400	F03	06-Jun-10
10009	Informal Pant	250	F02	20-Oct-10
10017	Formal Pant	300	F01	09-Mar-09
10020	Frock	380	F04	09-Sep-09
10089	Slacks	150	F03	31-Oct-10

Write the SQL statements for the following:

- (i) To display the description of Garment which are formal.
- (ii) Identify the primary key in the table Garment. Give reason for your choice.
- (iii) Write SQL command to change the FCode to F05 of the Garment with GCode as 10090 in the table Garment.
- (iv) Write query to display description of garment with their price whose FCode is F02.
- (v) Write a query to display the detail of garment whose price is more than 300.

or

Define the purpose of following functions with proper syntax and example.

- (i) UCASE( )
- (ii) ROUND( )

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- (iii) RIGHT()
- (iv) SUBSTRING()
- (v) MOD()

37. Plot a line chart on following data:

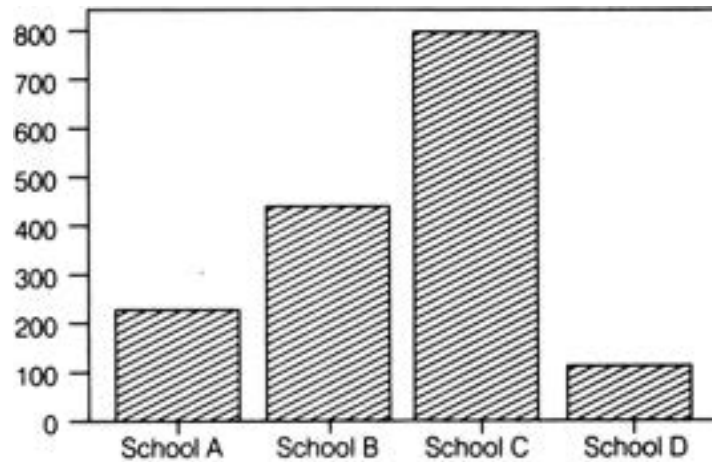
Name : 'Ravi', 'Ria', 'Priya', 'Akashi'

Marks: 45,50,30,65

Title of the chart should be " Student's Marks"

or

Write Python code to plot the given graph with heading as "school admissions".



END



**Sample Paper 11**  
**INFORMATICS PRACTICES (065)**  
**CLASS XII 2024-25**

**Time: 3 Hours**

**Max. Marks: 70**

**General Instructions:**

1. Please check 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 4 questions (29 to 32). Each question carries 3 Marks.
  7. Section D consists of 2 case study type questions (33 to 34). Each question carries 4 Marks.
  8. Section E consists of 3 questions (35 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**

1. State whether the following statement is True or False:  
In Pandas, `.sort_values()` can only sort a DataFrame in ascending order.
2. To delete a DataFrame column using `drop()` method, the minimum number of parameters required is \_\_\_\_\_.  
(a) 1 (b) 2  
(c) 3 (d) 4
3. \_\_\_\_\_ are not uses of internet technology.  
(a) Online shopping (b) Video conferencing  
(c) Online payment (d) Installation of software from a DVD
4. The right of an author of a book to get financial benefit from the book written by him/her is called \_\_\_\_\_.  
(a) IPR (b) property right  
(c) book right (d) None of these
5. The HAVING clause  
(a) acts exactly like WHERE clause.  
(b) acts like a WHERE clause but is used for columns rather than groups.  
(c) acts like a WHERE clause but is used for groups rather than rows.  
(d) acts like a WHERE clause but is used for rows rather than columns.

Continue on next page.....

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6. Which of the following is not an e-Waste?
- (a) Motherboard (b) Broken Monitor  
(c) Broken printer (d) Iron rods
7. What type of error is returned by the following statement?
- ```
import pandas as pd
d=pd.Series([1,2,3,4],
            index=['p', 'q', 'r'])
```
- (a) Value Error (b) Syntax Error  
(c) Name Error (d) Logical Error
8. State whether the following statement is True or False:  
The `ALTER TABLE` statement in SQL is used to modify the structure of an existing table.
9. What type of value is returned by the function COUNT()?
- (a) Mathematical (b) Date/Time  
(c) String (d) None of these
10. Traditional symbols and signs can be protected as \_\_\_\_\_.  
(a) patent (b) trademark  
(c) digital footprints (d) None of these
11. What will be the output of the following query?
- ```
SELECT LENGTH('AMAZING');
```
- (a) 5 (b) 6  
(c) 7 (d) 8
12. What is the significance of "ORDER BY" in the following MySQL statement?
- ```
SELECT emp_id, fname, lname
FROM person
ORDER BY emp_id;
```
- (a) Data of emp\_id will be sorted.  
(b) Data of emp\_id will be sorted in descending order.  
(c) Data of emp\_id will be sorted in ascending order.  
(d) All of the mentioned
13. The SQL query which will perform the following operation:  
To display the starting position of your first name(fname) from your whole name(name).
- (a) `SELECT INSTR(name, fname);`  
(b) `SELECT SUBSTRING(name, fname);`  
(c) `SELECT MID(name, fname);`  
(d) None of these

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14. John was using an antivirus software for free for a month, one morning he found the software stopped working saying that it needs to be bought. What category of software does it belong to?
- (a) Proprietary software (b) Free software  
(c) Freeware software (d) Shareware software

15. To check whether a series is empty or not, the attribute used is
- (a) empty (b) blank  
(c) isnull (d) isblank

16. Match the following SQL functions/clauses with their descriptions:

|    | SQL Function |    | Description                            |
|----|--------------|----|----------------------------------------|
| P. | AVG()        | 1. | Returns the average value in a column. |
| Q. | DISTINCT     | 2. | Removes duplicate rows.                |
| R. | WHERE        | 3. | Filters rows based on a condition.     |
| S. | LIKE         | 4. | Searches for a pattern in a column.    |

- (a) P-1, Q-3, R-4, S-2 (b) P-1, Q-2, R-3, S-4  
(c) P-3, Q-4, R-2, S-1 (d) P-2, Q-1, R-4, S-3

17. Which of the following is a Mathematical function?
- (a) POWER( ) (b) DAYOFMONTH( )  
(c) LEFT( ) (d) LENGTH()

18. Nisha wanted a software for her official documentation work, but she does not want to pay for it. \_\_\_\_\_ she should procure.
- (a) Closed software (b) Free software  
(c) Commercial software (d) Proprietary software

19. By default, web pages are saved in the \_\_\_\_\_ folder.
- (a) Download (b) Document  
(c) Picture (d) Music

**Directions (Q.Nos. 20-21) : Assertion and Reason based Questions.**

20. **Assertion (A)** : Dictionaries cannot be used to create a Series object.  
**Reason (R)** : Dictionaries have key,value pairs and Series is a one dimensional data structure.
- (a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true and R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.

Continue on next page.....

**CLICK HERE TO SEE ANSWERS**



**21. Assertion (A) :** Uniform Resource Locator (URL) is the address of a resource on the Internet and the protocol used to access it.

**Reason(R) :** .com is an example of URL of commercial site.

- (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 but R is false.
- (d) A is false but R is true.

## SECTION B

**22.** Write the short note on the following

- (i) Web server
- (ii) Mesh topology

**or**

List two disadvantages of internet.

**23.** Replace the incorrect function names by correct ones in the following statement

```
SELECT position ("Waterbottle",
                "bot");
```

Required : To get the position of "bot" in "Waterbottle"

**24.** Complete the given Python code: to select rows from the DataFrame 'df' where the 'Salary' column is greater than 50000.

```
import _____ as pd
data = {'Name': ['John', 'Jane', 'Mike', 'Emily'],
        'Salary': [45000, 52000, 48000, 55000]}
df = pd.DataFrame(_____)
selected_rows = df[df['_____']>_____]
print(selected_rows)
```

**25.** The Python code written below has syntactical errors. Rewrite the correct code and underline the corrections made.

```
import pandas as pd
data = {'A': [1, 2, 3], 'B': [4, 5, 6]}
df = pd.DataFrame()
df[C] = [7, 8, 9]
df = df['A', 'B', 'C']
```

**26.** What will happen to the current transaction if a DDL statement is executed?

**27.** A series "Subject" comprises of following data

| Index | Values      |
|-------|-------------|
| 0     | Mathematics |
| 1     | Physics     |

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- 2 Chemistry  
3 Computer Science

What will be output of the following code?

```
for s in Subject:
    if len(s) > 9:
        print (s*2)
```

28. What is plagiarism?

## SECTION C

29. Four dictionaries store the details of four employees as (Code, Name) of the month. Write a program to create a DataFrame from them.

30. Help mohit to write python statements for the following

- To delete the DataFrame permanently .
- To find the number of elements of the DataFrame.
- To find the structure of DataFrame.

31. Consider the table PAINT :

| Name      | Code | Category | Title    | Status   | Price | Year |
|-----------|------|----------|----------|----------|-------|------|
| G Hussain | 2098 | Water    | Demons   | Sold     | 70000 | 2016 |
| J Juneja  | 3099 | Oil      | Twilight | Not Sold | 8000  | 2017 |
| YD Sharma | 8001 | Collage  | Masses   | Sold     | 9500  | 2016 |
| AD Souyza | 7901 | Oil      | Tresses  | Sold     | 13000 | 2018 |
| Nevill    | 5400 | Water    | Holiday  | Not Sold | 8900  | 2019 |

Consider the above table 'Paint' and write the SQL queries for the following.

- Display the complete list of all the paintings that belong to category water.
- Display the Title and Code of those painting whose price is more than 9000.
- Increase the price of all painting in the given table by 5%.

or

Write the uses of aggregate functions. Write some examples of it.

32. Albert found that while logging to his E-mail account, the password was coming automatically,

- What could be the possible reason for above problem.
- In a URL what is the meaning of , https://?
- How to secure E-mail account from hackers?

or

Differentiate between intellectual property rights and digital property rights.

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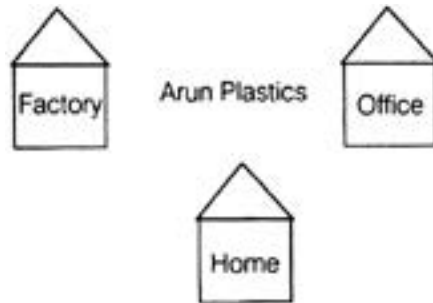
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## SECTION E

35. Arun Plastics has the following set-up of buildings, with each building equipped with multiple computers. The distance between the buildings and the number of computers in each is given below

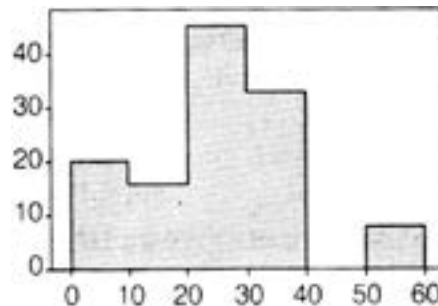


| Building | Number of Computers |
|----------|---------------------|
| Factory  | 125                 |
| Office   | 30                  |
| Home     | 20                  |

| Building       | Distance |
|----------------|----------|
| Factory-Office | 45 m     |
| Factory-Home   | 15 m     |
| Office-Home    | 120 m    |

- (i) Suggest a suitable cable layout of connectivity between the buildings.
- (ii) Suggest placement of server in the network.
- (iii) What kind of network(LAN/MAN/WAN) is formed here?
- (iv) Which topology should be used to connect the computers in each of the buildings?
- (v) Suggest a device and the protocol that shall be needed to provide wireless Internet access.

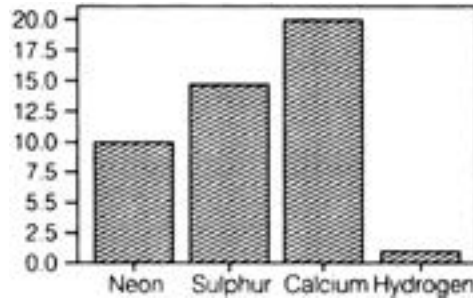
36. Write Python code to plot the given graph



or

Given below is a bar chart showing names of some elements and their atomic numbers. Write code to display this chart.





37. Consider the tables DOCTORS and PATIENTS given below

| Table : DOCTORS |            |            |          |
|-----------------|------------|------------|----------|
| DocID           | DocName    | Department | OPD_Days |
| 101             | M Panday   | ENT        | US       |
| 102             | G P Gupta  | Paed       | MWF      |
| 201             | C K Sharma | Ortho      | MWF      |

| Table : PATIENTS |         |            |       |
|------------------|---------|------------|-------|
| PatNo            | PatName | Department | DocID |
| 1                | Neeraj  | ENT        | 101   |
| 2                | Mohit   | Ortho      | 201   |
| 3                | Ragini  | ENT        | 101   |
| 4                | Mohit   | Paed       | 102   |
| 5                | Nandini | Ortho      | 201   |

Write the SQL queries for the following:

- To display the PatNo, PatName, DocID with corresponding DocName for each patient.
- To display the PatName, Department and corresponding DocName whose OPD\_Days is MWF.
- To display name of those patients whose name start with 'N'.
- Identify the primary key in the table PATIENTS. Give reason for your choice.
- To change DocID to 202 of the patient with number as 5 in the table PATIENTS.

or

Define the purpose of following functions with proper syntax and example.

- MOD()
- MIN()
- ROUND()
- LTRIM()
- LEFT()

END

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**Sample Paper 12**  
**INFORMATICS PRACTICES (065)**  
**CLASS XII 2024-25**

**Time: 3 Hours**

**Max. Marks: 70**

**General Instructions:**

1. Please check 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 4 questions (29 to 32). Each question carries 3 Marks.
  7. Section D consists of 2 case study type questions (33 to 34). Each question carries 4 Marks.
  8. Section E consists of 3 questions (35 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**

1. State whether the following statement is True or False:  
The `.mean()` function in Pandas calculates the median of numeric columns by default.
2. The "T" property can be used on
  - (a) Series
  - (b) Data Frame
  - (c) Both (a) and (b)
  - (d) invalid parameter
3. Intentionally kept traces of activities done over the web are called \_\_\_\_\_.
  - (a) passive digital footprints
  - (b) data prints
  - (c) digital traceback
  - (d) active digital footprints
4. Use of electronic means to perform business transactions are related to
  - (a) e-Commerce
  - (b) e-Business
  - (c) e-Shopping
  - (d) All of these
5. Snigdha found her image attached to an unknown person and published in a social networking site. What should she do?
  - (a) Complain the cyber crime cell
  - (b) Ignore it
  - (c) Upload more pictures of herself
  - (d) Try to contact the source

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6. Sunaina's computer system was not working due to a problem in the CPU, what should she do with it?
- (a) Dispose the entire set and buy a new one
  - (b) Keeping the usable components dispose the unused parts to an e-Waste recycler
  - (c) Dispose the system casually anywhere
  - (d) Give it to her sister for play
7. While creating a Series, the number of values
- (a) should be same as number of indexes
  - (b) can be more than the number of indexes
  - (c) can be less than the number of indexes
  - (d) Both (b) and (c)
8. State whether the following statement is True or False: The `BETWEEN` operator in SQL is inclusive, meaning it includes the starting and ending values in the range.
9. What will be returned by the given query?
- ```
SELECT INSTR('INDIA', 'DI');
```
- (a) 2
  - (b) 3
  - (c) - 2
  - (d) - 3
10. Selling of a software illegally for temporary use as on rent basis is called \_\_\_\_\_.
- (a) Renting
  - (b) Softlifting
  - (c) Downloading
  - (d) Counterfeiting
11. \_\_\_\_\_ is a text based web browser?
- (a) Opera
  - (b) Linux
  - (c) Safari
  - (d) All of these
12. Which of the following function returns only date part from the given date/time argument?
- (a) DATE()
  - (b) CURDATE()
  - (c) DATECUR()
  - (d) None of these
13. Which of the following function converts the characters of an argument string to the uppercase characters?
- (a) UCASE()
  - (b) UPPER()
  - (c) Both (a) and (b)
  - (d) None of these
14. Which of the following cannot be used to access data from a DataFrame?
- (a) loc()
  - (b) iloc()
  - (c) head()
  - (d) getdata()
15. Which clause is used with aggregate functions?
- (a) GROUP BY
  - (b) SELECT
  - (c) WHERE
  - (d) Both (a) and (b)

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## SECTION B

22. Given a DataFrame storing marks of some college students as follows:

```
import pandas as pd
dict = {'Name': ['Martha', 'Tim',
                'Rob', 'Georgia'],
        'Maths' : [87, 91, 97, 95],
        'Science' : [83, 99, 84, 76]}
df = pd.DataFrame(dict)
df.loc[len(df.index)] = ['Amy', 89,
                        93] #L1
```

What will be the output of statement L1?

23. Complete the given Python code: to display the last 3 rows of the DataFrame df using Pandas.

```
import _____ as pd
data = {'Name': ['John', 'Jane',
                'Mike', 'Emily'],
        'Age': [25, 30, 22, 28]}
df = pd.DataFrame(_____)
print(df._____(_____))
```

24. Write SQL function which returns the sum of values in given column with proper syntax.
25. Riya wants to add another column 'Gender' in the already existing table CUSTOMERS. She has written the following statement. However, it has error. Rewrite the correct statement.
- ```
MODIFY TABLE CUSTOMERS GENDER CHAR(1);
```

26. The Python code written below has syntactical errors. Rewrite the correct code and underline the corrections made.

```
import pandas as pd
data = {'A': [1, 2, 3],
        'B': [4, 5, 6]}
df = Pd.dataFrame(data)
result = df[df 'A' > 1 'B']
```

27. Discuss the factors that govern the selection of a topology for a network.

or

How does Voice over Internet Protocol (VoIP) work?

28. What are the solutions for phishing and pharming attack?

## SECTION C

29. Write the code to create the following DataFrame:

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|   | Name     | Marks | Subject  |
|---|----------|-------|----------|
| a | Abhi     | 75    | Maths    |
| b | Chirag   | 82    | Science  |
| c | Tushar   | 69    | English  |
| d | Mahi     | 70    | Science  |
| e | Vanshika | 92    | Computer |

30. Consider the following DataFrame df:

|   | Code | Name | Price | Qty | Discount |
|---|------|------|-------|-----|----------|
| 0 | C1   | ABC  | 5500  | 10  | 10       |
| 1 | C2   | XYZ  | 4500  | 8   | 5        |
| 2 | C3   | PQR  | 5200  | 12  | 8        |
| 3 | C4   | MNO  | 3000  | 9   | 15       |
| 4 | C5   | LMN  | 5500  | 11  | 12       |

(i) Write down the command that will give the following output.

```
Code           C1
Name           ABC
Price          3000
Qty            8
Discount       5
dtype : object
```

(ii) To add a new column, Label with the values, 'A', 'A', 'B', 'A', 'B' to the DataFrame.

(iii) To find the most repeat value of the DataFrame.

31. Write SQL queries for the following:

(i) Add a constraint in table EMP1 that declares column Designation NOT NULL.

(ii) DROP table EMP1.

(iii) Write the command to increase the salary (column\_name : Salary) by 10% of all the employee whose salary less than 20000. The table's name is ARIHANT.

or

Aryan, a database administrator, has grouped records of a table with the help of GROUP BY clause.

He needs to further filter groups of records generated through GROUP BY clause. Suggest suitable clause for it and properly, explain its usage with the help of an example.

32. Shraddha, a programmer does not like some of the features of the software MS-Office and she wants to see the source code of the software and change it .

Now, answer the following questions on the basis of above reading:

(i) What type of software is MS-Office?

(ii) Shraddha has searched for few softwares online, in which she can change the source code.

What are such software called as?

(iii) What kind of illegal activity can happen, if a wrong link/software is clicked?

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or

Why should Intellectual Property rights be protected?

## SECTION D

33. A series s1 and s2 are created using the code :

```
import pandas as pd
import numpy as np
data=np.array([54,76,88,99,34])
s1=pd.Series(data,index=['a', 'b', 'c', 'd', 'e'])
```

(a) Write the output of the following code.

(i) `s2=s1.reindex(['e', 'b', 'c', 'a', 'd'])`

`print (s2)`

(ii) `print(s2.loc['e' : 'b'])`

(b) Write command that will give the following output

b        76

c        88

(c) Write command that display the series by adding 10 in each value.

or

Write the output of

```
print (s1.shape)
```

34. The content of Item\_No and Cost columns of a table ITEMS are given below:

| Item_No | Cost |
|---------|------|
| 101     | 5000 |
| 102     | 6000 |
| 103     | NULL |
| 104     | NULL |
| 105     | 6000 |

Based on this information, find the output of the following queries:

(i) `SELECT AVG (Cost) FROM Items;`

(ii) `SELECT Cost + 100 FROM Items WHERE Item_No>103;`

(iii) Write the query to assign cost as 1000 for the items whose cost is NULL.

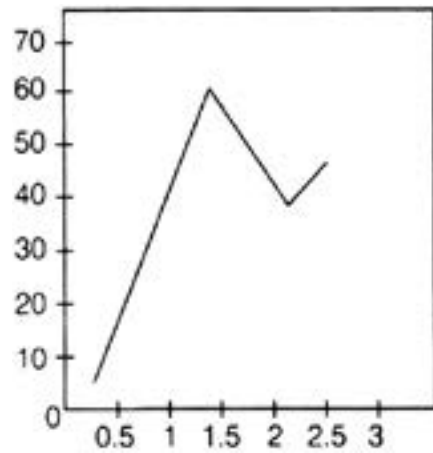
(iv) Write the query to show the most costly item with its price.

## SECTION E

35. Consider the following graph. Write the code to plot it.

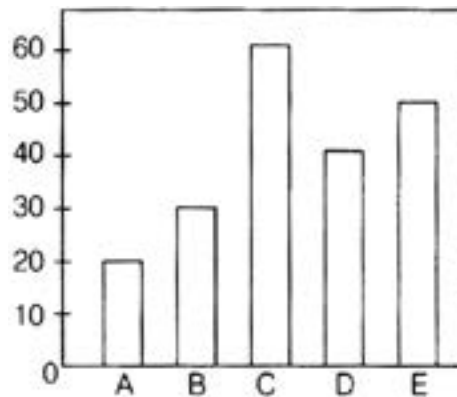
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or

Write Python code to draw the following bar graph representing the number of items in each category.



36. In the database COMPANY, there are two tables given below :

| Table : Handset |             |              |            |
|-----------------|-------------|--------------|------------|
| Set Code        | Set Name    | Touch Screen | Phone Cost |
| N1              | Nokia 2G    | N            | 5000       |
| N2              | Nokia 3G    | Y            | 8000       |
| B1              | Black Berry | N            | 14000      |

| Table : Customer |          |              |
|------------------|----------|--------------|
| Cust No          | Set Code | Cust Address |
| 1                | N2       | Delhi        |
| 2                | B1       | Mumbai       |
| 3                | N2       | Mumbai       |
| 4                | N1       | Kolkata      |
| 5                | B1       | Delhi        |

Write SQL queries for the following:

(i) Display the CustNo, CustAddress and corresponding SetName for each customer.

**CLICK HERE TO SEE ANSWERS**



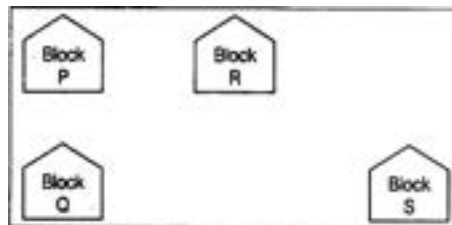
- (ii) Display the customer details for each customer who use a Nokia handset.
- (iii) Increase the PhoneCost in the given table by 500.
- (iv) Identify the foreign key in the table CUSTOMER.
- (v) Write SQL command to change SetCode to N3 of the SetName with CustNo as 3. In the table CUSTOMER.

**or**

Define the purpose of following terms with proper syntax and example.

- (i) SUM()
- (ii) MAX()
- (iii) RIGHT()
- (iv) ORDER BY
- (v) WHERE

- 37.** Knowledge supplement organisation has set up its new center at Mangalore for its office and web based activities. It has 4 blocks of buildings as shown in the diagram below



Centre to centre distances between various blocks:

|                    |       |
|--------------------|-------|
| Block P to Block Q | 60 m  |
| Block Q to Block R | 160 m |
| Block R to Block S | 35 m  |
| Block P to Block S | 180 m |
| Block P to Block R | 100 m |

| Number of computers |     |
|---------------------|-----|
| Block P             | 35  |
| Block Q             | 60  |
| Block R             | 135 |
| Block S             | 20  |

- (i) Suggest a cable layout of connections between the blocks.
- (ii) Suggest the most suitable place (i.e. block) to house the server of this organisation with a suitable reason.
- (iii) Suggest the placement of the following devices with justification :
  - (a) Repeater
  - (b) Hub/Switch
- (iv) The organisation is planning to link its front office situated in the city in a hilly region, where cable connection is not feasible, suggest an economic way to connect it with reasonably high speed?
- (v) What is the purpose of modem in networking?

**END**



**Sample Paper 13**  
**INFORMATICS PRACTICES (065)**  
**CLASS XII 2024-25**

**Time: 3 Hours**

**Max. Marks: 70**

**General Instructions:**

1. Please check 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 4 questions (29 to 32). Each question carries 3 Marks.
  7. Section D consists of 2 case study type questions (33 to 34). Each question carries 4 Marks.
  8. Section E consists of 3 questions (35 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**

1. State whether the following statement is True or False:  
The `groupby()` method in Pandas allows grouping data based on column values to perform aggregate functions.
2. Type(s) of law that can help to restrict software piracy is/are  
(a) copyright (b) patent  
(c) trademark (d) All of these
3. A \_\_\_\_\_ is a network device that connects multiple devices together, allowing them to communicate with each other.  
(a) modem (b) hub  
(c) switch (d) router
4. The return type of `POWER()` function is  
(a) String (b) Date  
(c) Numeric (d) None of these
5. Linux, MySQL and Mozilla Firefox software come under \_\_\_\_\_ category.  
(a) proprietary (b) FOSS  
(c) freeware (d) shareware

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6. Which of the following import statement is not correct?  
(a) import pandas as class12 (b) import pandas as 1 pd  
(c) Import pandas as pd 1 (d) import pandas as pd
7. Which of the following is an example of copyleft license?  
(a) GPL (b) BSD  
(c) MIT (d) All of these
8. State whether the following statement is True or False:  
In SQL, `NULL` is considered equal to `NULL` in comparison operations.
9. The correct output of  
`SELECT TRIM (LEADING '&' FROM '&&& India &&&'); is`  
(a) India &&& (b) India &&&&  
(c) && India (d) &&& India
10. For given table 'emp' with following columns eno, ename, sal, dept, designation  
Select correct statement to display all records of 'emp' in descending order of ename and within ascending order of dept.  
(a) `SELECT*FROM emp ORDER BY ename, dept DESC;`  
(b) `SELECT*FROM emp ORDER BY ename, ORDER BY dept DESC;`  
(c) `SELECT*FROM emp ORDER BY ename DESC, dept;`  
(d) `SELECT*FROM emp WHERE ORDER BY ename, dept DESC;`
11. Given a Pandas Series called Sequences, the command which will display the first 4 rows is \_\_\_\_\_.  
(a) `print(Sequences.head(4))` (b) `print(Sequences.Head(4))`  
(c) `print(Sequences.heads(4))` (d) `print(Sequences.Heads(4))`
12. The \_\_\_\_\_ include right to copy (reproduce) a work, right to distribute copies of the work to the public, and right to publicly display or perform the work.  
(a) Copyright (b) Patent  
(c) Create right (d) None of these
13. The digital data trail we leave online intentionally is called \_\_\_\_\_.  
(a) Active digital footprints (b) Passive digital footprints  
(c) Current digital footprints (d) None of these
14. Which amongst the following is not a Text function in MySQL?  
(a) `UCASE()` (b) `RIGHT()`  
(c) `DAY()` (d) `LENGTH()`

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15. Which of the following is/are library function(s) used to load data from CSV files into DataFrame?

- (a) read\_csv()
- (b) to\_csv()
- (c) Both (a) and (b)
- (d) None of these

16. Match the following SQL functions/clauses with their descriptions:

|    | SQL Function |    | Description                                                     |
|----|--------------|----|-----------------------------------------------------------------|
| P. | ROUND()      | 1. | Rounds a number to a specified decimal place.                   |
| Q. | MOD()        | 2. | Returns the remainder of a division.                            |
| R. | CEIL()       | 3. | Returns the smallest integer greater than or equal to a number. |
| S. | FLOOR()      | 4. | Returns the largest integer less than or equal to a number.     |

- (a) P-2, Q-1, R-4, S-3
- (b) P-1, Q-2, R-3, S-4
- (c) P-3, Q-4, R-1, S-2
- (d) P-4, Q-3, R-2, S-1

17. \_\_\_\_\_ topology, network components are connected to the same cable.

- (a) Star
- (b) Ring
- (c) Bus
- (d) Mesh

18. What will be returned by the given query?

```
SELECT ROUND(153.669.2);
```

- (a) 153.6
- (b) 153.66
- (c) 153.67
- (d) 153.7

19. In files, there is a key associated with each record which is used to differentiate among different records. For every file, there is atleast one set of keys that is unique. Such key is called

- (a) Unique key
- (b) Prime attribute
- (c) Index key
- (d) Primary key

**Directions (Q.Nos. 20-21) : Assertion and Reason based Questions.**

20. **Assertion (A)** : CSV files are comma separated.

**Reason (R)** : Data in CSV file is presented in tabular form separated by comma and saved as plain text.

- (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 but R is false.
- (d) A is false but R is true.

21. **Assertion (A)** : A network is a collection of computers, servers, mainframes, network devices, peripherals, or other devices connected to allow data sharing.

**Reason (R)** : An example of a network is the Internet, which connects millions of people all over the world.

- (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 but R is false.
- (d) A is false but R is true.



## SECTION B

22. Riya has given the following command to obtain the highest salary:

```
SELECT MAX (EMP_SALARY) FROM Employee
WHERE GROUP BY DOJ:
```

But she is not getting the desired output. Help her by writing the correct command.

23. In how many ways, we can find the current date using MySQL?

24. 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?

25. Consider the following DataFrame df 1:

|   | Code | Name    | M1 | M2 | M3 |
|---|------|---------|----|----|----|
| 0 | 11   | Riya    | 45 | 39 | 53 |
| 1 | 12   | Shobhit | 72 | 58 | 49 |
| 2 | 13   | Kiyaan  | 48 | 62 | 72 |
| 3 | 14   | Vivek   | 65 | 70 | 59 |
| 4 | 15   | Aashi   | 79 | 81 | 78 |

Write the output of the following statements:

- (i) `df1.max()`
- (ii) `print (df1.count (0))`

26. 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]})
df2 = pd.DataFrame({'A': [7,8,9],
                   'B': [10, 11, 12]})
result_df = pd. _____([_____, ____])
print(result_df)
```

27. 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)
```

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## SECTION C

28. Give any two measures to avoid online scams.

29. Consider the following DataFrame df.

|   | Name     | Age | Score | Percentage |
|---|----------|-----|-------|------------|
| 1 | Rahul    | 18  | 98    | 80         |
| 2 | Aaisha   | 19  | 72    | NaN        |
| 3 | Kiyaan   | 17  | 92    | 69         |
| 4 | Riya     | 20  | 87    | 78         |
| 5 | Ashutosh | 19  | 85    | 99         |
| 6 | Nishant  | 18  | 99    | 69         |
| 7 | Kanak    | 17  | 76    | 73         |

Write the code

- (i) To display the column labels of the DataFrame.
- (ii) To add a new column Remark.
- (iii) To sort the dataframe on column Age.

30. Write the code in Pandas to create the following DataFrame.

|   | Name     | Subject     | Marks |
|---|----------|-------------|-------|
| 1 | Abhi     | Mathematics | 46    |
| 2 | Vanshika | Science     | 76    |
| 3 | Riya     | Science     | 70    |
| 4 | Chirag   | Mathematics | 82    |
| 5 | Tushar   | Commerce    | 72    |
| 6 | Khushal  | Physical    | 80    |
| 7 | Mahi     | Art         | 78    |

31. Why are netiquettes important?

or

Give the safety measures to reduce the risk of cyber crime.

32. Consider the Table “Infant” shown below

| Table : Infant |          |               |           |          |
|----------------|----------|---------------|-----------|----------|
| Item Code      | Item     | Date Purchase | UnitPrice | Discount |
| 101            | Frock    | 2016-01-23    | 700       | 10       |
| 102            | Cot      | 2015-09-23    | 5000      | 25       |
| 103            | Soft Toy | 2016-06-17    | 800       | 10       |

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|     |            |            |     |   |
|-----|------------|------------|-----|---|
| 104 | Baby Socks | 2014-10-16 | 100 | 7 |
| 105 | Baby Suit  | 2015-09-20 | 500 | 5 |

**Note** Discount column stores discount %.

Write the commands in SQL for (i) to (iii).

- To display the details about the Cot.
- To list the names of items and their unit price that have unit price less than 800 and discount more than 5%.
- To list the names of items and their date of purchase that were purchased after 31st December, 2015.

**or**

Write the names of any three date/time functions and their uses.

## SECTION D

- 33.** Consider two objects A and B. A is a list whereas B is a Series. Both have same values 20, 35, 75, 110.
- What will be the output of the following two statements considering that the above objects have been created already?
    - print (A\*3)
    - print (B\*3)
  - Write the Python statement to retrieve number of bytes of Series B.
  - Write Python statement to retrieve item size.

**or (Option for part (c) only)**

Write the Python statement to retrieve shape of Series B.

- 34.** Consider the following table Salesperson:

| Table : Salesperson |                 |             |            |          |       |
|---------------------|-----------------|-------------|------------|----------|-------|
| SID                 | Name            | Phone       | DOB        | Salary   | Area  |
| S101                | Amit Kumar      | 98101789654 | 1967-01-23 | 67000.00 | North |
| S102                | Deepika Sharma  | 99104567834 | 1992-09-23 | 32000.00 | South |
| S103                | Vinay Srivastav | 98101546789 | 1991-06-27 | 35000.00 | North |
| S104                | Kumar Mehta     | 88675345789 | 1967-10-16 | 40000.00 | East  |
| S105                | Rashmi Kumar    | 98101567434 | 1972-09-20 | 50000.00 | South |

Based on above table, answer the following questions.

- Write the output of the following statement.  

```
SELECT Name, Salary FROM
Salesperson
WHERE Salary BETWEEN 30000 AND
40000;
```
- What is the datatype of column SID?
- To display the names of salesperson in order of highest to lowest Salary.
- To display names of salespersons who have the word 'Kumar' anywhere in their names.

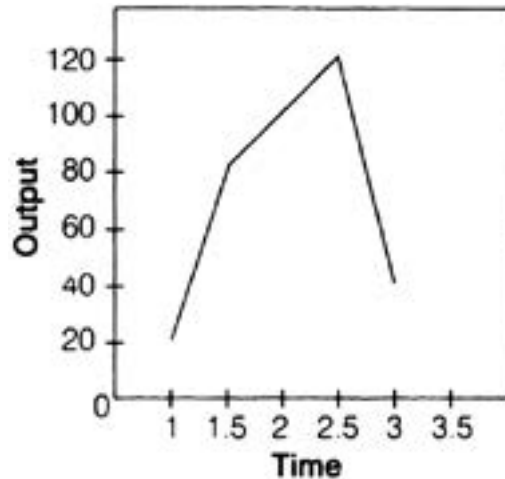
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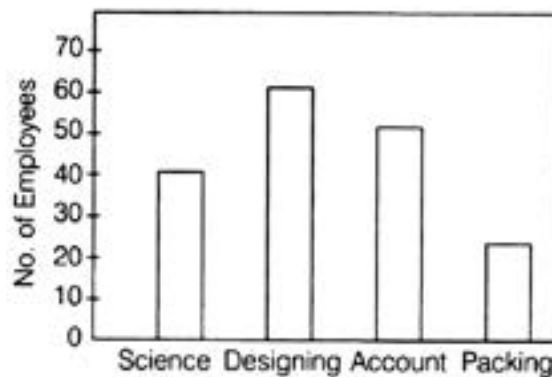
## SECTION E

35. Consider the following graph. Write the code to plot it.



or

Write the Python code to draw the following bar graph representing the number of employees in each department.



36. Consider the following tables CONSIGNOR and CONSIGNEE. Write SQL commands for the statements (i) to (iv) and give output for SQL query (v).

| Table : CONSIGNOR |            |                   |           |
|-------------------|------------|-------------------|-----------|
| Cnor ID           | Cnor Name  | Cnor Address      | 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, Westened    | Mumbai    |

| Table : CONSIGNEE |         |           |              |           |
|-------------------|---------|-----------|--------------|-----------|
| Cnee ID           | Cnor ID | Cnee Name | Cnee Address | Cnee City |

**CLICK HERE TO SEE ANSWERS**



|      |      |               |                     |           |
|------|------|---------------|---------------------|-----------|
| MU05 | ND01 | Rahul Kishore | 5, Park Avenue      | Mumbai    |
| ND08 | ND02 | P Dhingra     | 16/J Moore Enclave  | New Delhi |
| KU19 | MU15 | 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 CneeID, CneeName, CneeAddress of all consignee from New Delhi.
- (iii) To display consignee details in ascending order of CneeName.
- (iv) To display number of consignors from each City.
- (v) `SELECT DISTINCT(City) FROM CONSIGNEE;`

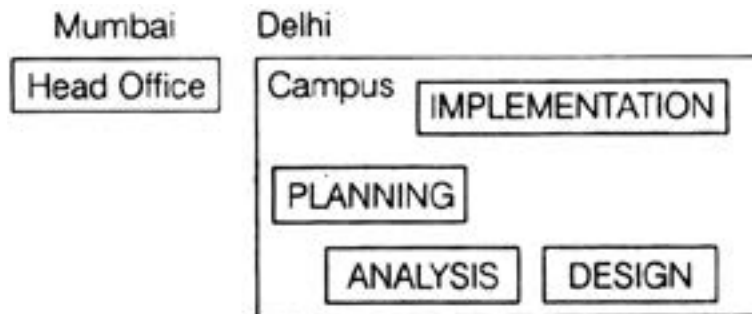
or

Define the following functions with proper example.

- (i) INSTR()
- (ii) MOD()
- (iii) POW()
- (iv) YEAR()
- (v) SUBSTR()

- 37.** Ideal IT Service Ltd is a software development organisation. It is planning to set up its Indian campus at Delhi with its head office at Mumbai. The Delhi campus has 4 main 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:

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|                    |     |
|--------------------|-----|
| 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
  - (c) Ethernet cable.
- (v) What is the use of firewall in building network?

END

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**Sample Paper 14**  
**INFORMATICS PRACTICES (065)**  
**CLASS XII 2024-25**

**Time: 3 Hours**

**Max. Marks: 70**

**General Instructions:**

1. Please check 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 4 questions (29 to 32). Each question carries 3 Marks.
  7. Section D consists of 2 case study type questions (33 to 34). Each question carries 4 Marks.
  8. Section E consists of 3 questions (35 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**

1. State whether the following statement is True or False:  
The `.mean()` function in Pandas calculates the median of numeric columns by default.
2. The return type of DAYOFMONTH function is  
(a) String (b) Date  
(c) Float (d) Integer
3. A DataFrame is created by a dictionary carrying 3 keys and 4 values against each of the keys. \_\_\_\_\_ columns will be there in the DataFrame.  
(a) 2 (b) 1  
(c) 3 (d) 4
4. The functional idea is protected under \_\_\_\_\_.  
(a) patent (b) copyright  
(c) trademark (d) None of these
5. Which of the following acts are not done by cyber criminals?  
(a) Report vulnerability in any system (b) Mass attack using trojans  
(c) Email spoofing and spamming (d) Unauthorised account access
6. Which of the following query will help Aditi to find the power of 2 a number 'N'?  
(a) `SELECT N+N;` (b) `SELECT N*2;`  
(c) `SELECT SQRT(N);` (d) `SELECT POWER(N, 2);`

**CLICK HERE TO SEE ANSWERS**



7. A \_\_\_\_\_ set of rules that governs data communication.
- (a) Protocols (b) Standards  
(c) RFCs (d) Servers
8. State whether the following statement is True or False:  
In SQL, `NULL` is considered equal to `NULL` in comparison operations.
9. Piya wanted to change the value of index 3 of a series s1 to 100, the statement will be
- (a) s1.3=100 (b) s1(3)=100  
(c) s1[3] =100 (d) None
10. Which of the following are not the health hazards of technology?
- (a) Musculoskeletal problems (b) Vision problems  
(c) Heart problems (d) Sleeplessness
11. Robert is confused between the terms FOSS and OSS, the statement that clarifies it is
- (a) FOSS is OSS that is free.  
(b) FOSS is not open source , but OSS is open source.  
(c) FOSS is to be bought, but OSS is not paid.  
(d) FOSS is limited period use, but OSS is free for unlimited period.
12. Which of the following is not an attribute of DataFrame object?
- (a) axes (b) shape  
(c) ndim (d) head
13. In which format, a simple date value in MySQL exists?
- (a) MM-YYYY-DD (b) YYYY-MM-DD  
(c) DD-MM-YYYY (d) None of these
14. Users can share \_\_\_\_\_ using networking.
- (a) printers (b) files  
(c) scanner (d) All of these
15. Write the output of the following query  
mysql>SELECT SUBSTR ( `STUDENT` , 3, 3 ) ;
- (a) ude (b) UDE  
(c) Den (d) DEN

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16. Match the following SQL functions/clauses with their descriptions:

|    | SQL Function  |    | Description                                   |
|----|---------------|----|-----------------------------------------------|
| P. | CHAR_LENGTH() | 1. | Returns the number of characters in a string. |
| Q. | TRIM()        | 2. | Removes leading and trailing spaces.          |
| R. | SUBSTR()      | 3. | Extracts a portion of a string.               |
| S. | REPLACE()     | 4. | Replaces occurrences of a substring.          |

(a) P-1, Q-2, R-3, S-4

(b) P-4, Q-3, R-2, S-1

(c) P-2, Q-4, R-1, S-3

(d) P-3, Q-1, R-4, S-2

17. Which of the following are good e-Waste treatment practices?

(a) Throwing them into soil

(b) Donating outdated technology

(c) Giving e-Waste to certified e-Waste recycler

(d) Both (b) and (c)

18. In which function, null values are excluded from the result returned?

(a) SUM

(b) MAX

(c) MIN

(d) All of these

19. Which function will display the name of each student in uppercase letters.

(a) UPPER

(b) UCASE

(c) Both (a) and (b)

(d) Only (b)

**Directions (Q.Nos. 20-21) : Assertion and Reason based Questions.**

20. **Assertion (A) :** Pandas.head() is used to display first 5 records of any Series or DataFrame.

**Reason (R) :** It displays the last 3 rows.

(a) Both A and R are true and R is the correct explanation of A.

(b) Both A and R are true and R is not the correct explanation of A.

(c) A is true but R is false.

(d) A is false but R is true.

21. **Assertion (A) :** In March 1989, Tim Berners-Lee took the initiative towards the invention of WWW and wrote the first proposal for the World Wide Web.

**Reason(R) :** World Wide Web is a way of exchanging information between computers on the Internet.

(a) Both A and R are true and R is the correct explanation of A.

(b) Both A and R are true and R is not the correct explanation of A.

(c) A is true R is false.

(d) A is false R is true.

Continue on next page.....

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## SECTION B

22. Differentiate between web browser and web server.

or

What is the role of a router as a network device?

23. Given the following code for a series creation, write the output of the following statement.

```
s1=pd.Series([1, 2, 3, 4])
print(s1[0 : 2]*2)
```

24. Complete the given Python code: to create a DataFrame from the given dictionary 'data' and display the first 3 rows using Pandas.

```
import _____ as pd
data = {'Name': ['John', 'Jane', 'Mike', 'Emily'],
       'Age': [25, 30, 22, 28],
       'City': ['New York', 'London', 'Paris', 'Sydney']}
df = pd._____(_____)
print(df._____(_____))
```

25. The Python code written below has syntactical errors. Rewrite the correct code and underline the corrections made.

```
import pandas as pd
data = {A [1, 2, 3, 4, 5],
        B [6, 7, 8, 9, 10]}
df = pd.DataFrame()
result = df.loc[1 : 4, 'A': 'B']
```

26. Find the error in the query and rewrite the correct answer

```
Select weekdayname ("2020-09-12");
```

Required: To get the week's dayname for the date specified.

27. Write names of any two aggregate functions and one example of each.

28. What is a Freeware Software? Give some examples of freeware software.

## SECTION C

29. Given two identical DataFrames df1 and df2. But df2 has some values missing. Write code so that df2 fills its missing values from corresponding entries of df1.

30. Roma wants to create a DataFrame "Vehicle" comprising of some vehicles and their prices. She also wants to perform some operations on the DataFrame, like additions, modification, arrangement of the data etc. Help her to perform the operations.

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| Index | Vehicle | Wheels | Price  |
|-------|---------|--------|--------|
| 0     | Truck   | 8      | 820000 |
| 1     | Car     | 4      | 560000 |
| 2     | Moped   | 2      | 125000 |
| 3     | eBike   | 2      | 150000 |

Write the Python statements for the following

- To make the price as 50% of the current prices
- To modify the values of 'Wheels' column by values [9, 5, 3, 2]
- To view only the contents of the 'Wheels' column

31. table Cricket is given below, write queries to get the following

| Table : Cricket |             |       |         |
|-----------------|-------------|-------|---------|
| BID             | BatsmanName | Fifty | Hundred |
| B1              | Sourav      | 120   | 200     |
| B2              | Sachin      | 150   | 300     |
| B3              | Rahul       | 75    | 30      |
| B4              | Gayles      | 100   | 45      |
| B5              | Richards    | 200   | 70      |

- Display the first three characters of the batsman names whose hundreds are more than fifties.
- Display the square root of the hundreds scored by each of the batsman.
- Display the hundreds/fifties rounded to 1 decimal place.

or

Help Sunaina with proper statements to get the outputs required in the following cases with respect to the table Emp given with columns Eno, Ename, Dept and Salary.

- To get the 1st three letters from the Ename column from Emp table.
- To get  $12^3$ .
- To get the string "TIGER" in lowercase.

32. Link softwares had developed a software, but they found that the software code was stolen and sold by another company with their name.

- What is this act called ?
- What does Practice of obtaining contribution from online community is called as?
- Softwares that allow you to try the software for free, before use are called as...

or

List any three good netiquettes.

Continue on next page.....

**CLICK HERE TO SEE ANSWERS**



## SECTION D

33. Given a table Zoo storing details of some animals of a Zoo:

| <b>Table : Zoo</b> |              |             |            |
|--------------------|--------------|-------------|------------|
| <b>AId</b>         | <b>Aname</b> | <b>Type</b> | <b>Qty</b> |
| A01                | Zebra        | Land        | 25         |
| A02                | Lion         | Land        | 10         |
| A03                | Giraffe      | Land        | 15         |
| A04                | Crocodile    | Aquatic     | 10         |
| A05                | Parrots      | Bird        | 30         |

Write outputs of the following statements:

- (i) `SELECT UCASE (SUBSTR(Aname, 3, 2)) FROM Zoo;`
- (ii) `SELECT MAX(Qty) FROM Zoo;`
- (iii) `SELECT MOD(Qty, 2) FROM Zoo WHERE NOT type = "Land";`
- (iv) Write a query to count different types of animals in the zoo.

34. A dataframe "Pencil" storing data of pencils is given below

| <b>Index</b> | <b>Pname</b> | <b>Type</b> |
|--------------|--------------|-------------|
| 0            | HB           | Dark        |
| 1            | QR           | Extra dark  |
| 2            | Silver       | Color       |
| 3            | ST           | OMR         |

- (a) What will be the output of the following?
  - (i) `Pencil.loc[2:2: 'Type']`
  - (ii) `df['Pencil'].nbytes`

Write the Python statement to do the following

- (b) To add a column storing the discount (Column name : "Disc") with values [5%,6%,2%,3%]
- (c) To display the size of dataframe Pencil.

**or (Option for part (c) only)**

To replace the index values with new values as twice the previous index values.

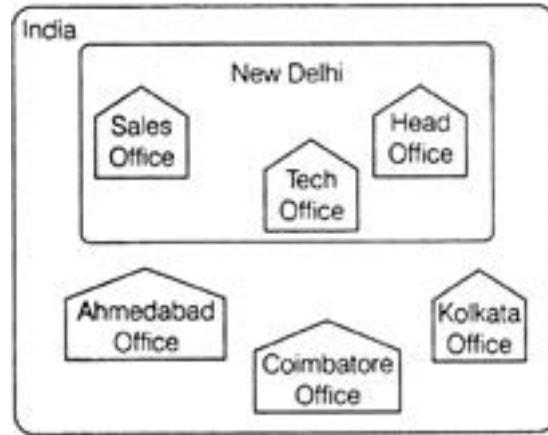
## SECTION E

35. Hindustan Connecting World Association is planning to start their offices in four major cities in India to provide regional IT infrastructure support in the field of education and culture. The company has planned to setup their head office in New Delhi in three different locations and have named their New Delhi offices as Sales Office, Head Office and Tech Office. The company's regional offices are located at Coimbatore, Kolkata and Ahmedabad.

A rough layout of the same is as follows:

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Approximate distances between these offices as per network survey team is as follows

| Place from  | Place to          | Distance |
|-------------|-------------------|----------|
| Head Office | Sales Office      | 10 m     |
| Head Office | Tech Office       | 70 m     |
| Head Office | Kolkata Office    | 1291 m   |
| Head Office | Ahmedabad Office  | 790 m    |
| Head Office | Coimbatore Office | 1952 m   |

In continuation of the above, the company experts have planned to install the following number of computers in each of their offices.

|                  |     |                   |    |
|------------------|-----|-------------------|----|
| Head Office      | 100 | Sales Office      | 20 |
| Tech Office      | 50  | Kolkata Office    | 50 |
| Ahmedabad Office | 50  | Coimbatore Office | 50 |

Answer the following questions

- (i) Suggest the network type (out of LAN, MAN, WAN) for connecting each of the following set of their offices.
  - (a) Head Office and Tech Office
  - (b) Head Office and Coimbatore Office
- (ii) Which device will you suggest to be procured by the company for connecting all computers within each of their offices out of the following devices?
  - (a) Modem
  - (b) Telephone
  - (c) Switch/Hub
- (iii) Suggest the cable/wiring layout for connecting the company’s local offices located in New Delhi.
- (iv) Suggest a device/software and its placement that would provide data security for the entire network .
- (v) Suggest a device and the protocol that shall be needed to provide wireless Internet access to all smartphone/laptop users.

Continue on next page.....

**CLICK HERE TO SEE ANSWERS**



36. Given a table Drinks, write SQL queries to get the following:

| Table : Drinks |              |            |      |
|----------------|--------------|------------|------|
| DrinkID        | Drinkname    | Type       | Cost |
| D01            | PepsiCola    | SoftDrinks | 45   |
| D02            | CocaCola     | SoftDrinks | 40   |
| D03            | MineralWater | Gen        | 25   |
| D04            | SodaWater    | Booster    | 30   |
| D05            | Mangodrink   | Children   | 50   |

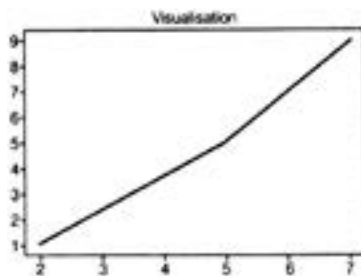
- (i) Display the last 4 characters of the drinknames in uppercase.
- (ii) Display each drinkname and the cost increased to double using a function.
- (iii) Display the type and cost of the drinks whose drinkname has the word "cola" in it, using a mysql function.
- (iv) To get drinkname and types concatenated.
- (v) To get the total cost of SoftDrinks.

or

Define the purpose of following functions with proper syntax.

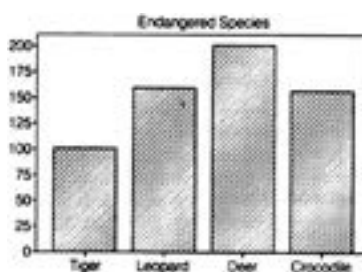
- (i) TRIM()
- (ii) COUNT()
- (iii) AVG()
- (iv) LENGTH()
- (v) MID()

37. Write the code to plot the given chart



or

Write the code to plot the given chart



**Sample Paper 15**  
**INFORMATICS PRACTICES (065)**  
**CLASS XII 2024-25**

**Time: 3 Hours**

**Max. Marks: 70**

**General Instructions:**

1. Please check 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 4 questions (29 to 32). Each question carries 3 Marks.
  7. Section D consists of 2 case study type questions (33 to 34). Each question carries 4 Marks.
  8. Section E consists of 3 questions (35 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**

1. State whether the following statement is True or False:  
The `.concat()` function is used to combine two or more DataFrames along rows or columns.
2. Arrange the following network in ascending order of their area:  
LAN, PAN, WAN, MAN  
(a) PAN < MAN < LAN < WAN                      (b) PAN < LAN < WAN < MAN  
(c) LAN < PAN < MAN < WAN                      (d) PAN < LAN < MAN < WAN
3. Which form of Cyber crime refers to offensive comments posted online targeting people?  
(a) Cyber bullying                                      (b) Cyber stalking  
(c) Cyber trolls                                         (d) Both (a) and (b)
4. \_\_\_\_\_ stands for malicious software, is designed to infiltrate a computer system without the owner's informed consent.  
(a) Blog                                                      (b) Attachments  
(c) Spam                                                     (d) Malware
5. Which function is used to delete a row from DataFrame?  
(a) DEL( )                                                 (b) DROP( )  
(c) DELETE( )                                         (d) DROPCOL( )

Continue on next page.....

**CLICK HERE TO SEE ANSWERS**



6. There is only 1 day left for Ravisha to submit her Science project. Therefore, she performed the following activities to complete her task. Which of the following activities can be considered as plagiarism?
- (a) Downloaded the images that were marked as CC and pasted in her project file.
  - (b) Copied the content from some website and pasted in her file.
  - (c) Copied the content from the website and gave references about the same in the project.
  - (d) Downloaded and installed the open source software for typing the synopsis.
7. e-Waste is becoming one of the fastest growing environmental hazards in the world today. If it is not properly treated or disposed of it can cause serious health hazards, therefore the \_\_\_\_\_ has issued a formal set of guidelines for proper handling and disposal of e-Waste.
- (a) Central Pollution Control Board (CPCB)
  - (b) Department of Information Technology (DIT)
  - (c) Waste Electrical and Electronic Equipment (WEEE)
  - (d) Information Communication Technology (ICT)
8. State whether the following statement is True or False:  
The `GROUP BY` clause can only be used with aggregate functions in SQL.
9. \_\_\_\_\_ is an electronic form of a signature that can be used to authenticate the identity of the sender of a message.
- (a) Digital signature
  - (b) Digital certificate
  - (c) Firewall
  - (d) None of these
10. Which among the following options can be used to create a DataFrame in Pandas?
- (a) A scalar value
  - (b) An ndarray
  - (c) A Python dict
  - (d) All of these
11. Which of the following command is used to discard unwanted data from a database?
- (a) DROP
  - (b) WHERE
  - (c) DELETE
  - (d) ALTER
12. \_\_\_\_\_ is the network topology in which there are bi-directional links between each possible node.
- (a) Ring
  - (b) Mesh
  - (c) Tree
  - (d) None of these
13. Find out the output of the following command.
- ```
mysql>SELECT DATE ('1991-04-02 01 : 45 : 55');
```
- (a) 02
  - (b) 04
  - (c) 1991-04-02
  - (d) 02-04-1991

Continue on next page.....

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14. Select correct SQL query from below to find the temperature in increasing order of all cities.

- (a) `SELECT city FROM weather ORDER BY temperature;`
- (b) `SELECT city, temperature FROM weather;`
- (c) `SELECT city, temperature FROM weather ORDER BY temperature;`
- (d) `SELECT city, temperature FROM weather ORDER BY city;`

15. `SELECT CONCAT ('Hello', 'Wonders', World');`

What will be the output of the above query?

- (a) HelloWondersWorld
- (b) hello wonders world
- (c) HELLOWONDERSWORLD
- (d) Hellowondersworld

16. Match the following SQL functions/clauses with their descriptions:

SQL Function		Description	
P.	INNER JOIN	1.	Combines rows that have matching values in both tables.
Q.	LEFT JOIN	2.	Returns all rows from the left table, and matching rows from the right table.
R.	RIGHT JOIN	3.	Returns all rows from the right table, and matching rows from the left table.
S.	FULL OUTER JOIN	4.	Combines all rows from both tables.

- (a) P-1, Q-2, R-3, S-4
- (b) P-4, Q-3, R-2, S-1
- (c) P-3, Q-1, R-4, S-2
- (d) P-2, Q-4, R-3, S-1

17. We can use the aggregate functions in select list or the \_\_\_\_\_ clause of a select statement. But they cannot be used in a \_\_\_\_\_ clause.

- (a) WHERE, HAVING
- (b) GROUP BY, HAVING
- (c) HAVING, WHERE
- (d) GROUP BY, WHERE

18. The return type of POWER( ) function is

- (a) String
- (b) Date
- (c) Numeric
- (d) None of these

19. In which of the following format, Pandas does not allow reading and writing?

- (a) int
- (b) float
- (c) double
- (d) All of these formats are allowed

**Directions (Q.Nos.20-21) Assertion and. Reason based Questions.**

20. **Assertion (A)** : Boolean indexing is a type of indexing.

**Reason (R)** : Boolean vectors can be used to filter the data.

- (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 but R is false.
- (d) A is false but R is true.

**21. Assertion (A) :** Social media are websites or applications that enable their users to participate in social networking but they cannot create and share content with others in the community.

**Reason (R) :** We should not waste precious time in responding to unnecessary emails or comments unless they have some relevance for us.

- (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 but R is false.
- (d) A is false but R is true.

## SECTION B

**22.** Using copyright, software piracy can be stopped. How?

**23.** The Python code written below has syntactical errors. Rewrite the correct code and underline the corrections made.

```
Import pandas as pd
import Numpy as np
arr = np.array([1, 2, 3, 4, 5])
my_Series = pd.Series(arr)
print(my_series)
```

**24.** What is the advantage of using switch over hub?

**or**

List two differences between a website and a web page.

**25.** Complete the given Python code to Create a DataFrame from the following dictionary 'data\_dict', and print the sum of all the values in the 'sales' column.

```
import _____ as pd
data_dict = {'item': ['A', 'B', 'C',
                    'D'], 'sales' : [50, 30, 45, 20]}
df = pd.DataFrame(_____)
print(df['sales']_____( ))
```

**26.** Which SQL function is used to remove leading and trailing spaces from a character expression X, where X = 'INFORMATION ###PRACTICE####' (# denotes a blank space) and also give the output of X.

**27.** Kiyaaan, a database administrator needs to display house wise total number of records of 'Blue' and 'Green' house. He is encountering an error while executing the following query:

```
SELECT HOUSE, COUNT (*) FROM SCHOOL GROUP BY HOUSE WHERE HOUSE='Blue' OR HOUSE='Green';
```

Help him in identifying the reason of the error and write the correct query by suggesting the possible correction(s).

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## SECTION C

28. Consider the following table CLUB.

Table : CLUB					
COAC H_ID	COACH NAME	AGE	SPORTS	Date_of_Joining	PAY
1	Rajesh	30	Karate	1999-08-25	1000
2	Anuj	35	Swimming	2000-01-05	750
3	Shuchi	25	Basketball	2005-01-04	1200
4	Reetika	28	Badminton	2002-08-25	1400
5	Virendra	32	Cricket	1996-05-17	1500

Write SQL queries for the following:

- (i) To display the substring of 4 characters of the name of each coach, starting from second character, with their age.
- (ii) To display the day for the Date\_of Joining column.
- (iii) To concat the COACHNAME with AGE where age of coach is above 30 years.

**or**

What is the purpose of GROUP BY clause in MySQL? How is it different from ORDER BY clause?

29. Write the code to create the following DataFrame:

	Name	Marks	Subject
a	Abhi	75	Maths
b	Chirag	82	Science
c	Tushar	69	English
d	Mahi	70	Science
e	Vanshika	92	Computer

30. Explain the term plagiarism. Mention any two ways to avoid plagiarism.

**or**

Smridh has recently changed his school, so he is not aware of the people, but someone is posting negative, demeaning comments on his social media profile. He is also getting repeated mails from unknown people. Everytime he goes online, he finds someone chasing him online.

- (i) Smridh is a victim of \_\_\_\_\_
- (ii) What should Smridh needs to do inorder to priotqct. his personal information or data from unintentional and intentional attacks .
- (iii) Why are netiquettes important?

31. Consider the following DataFrame dfn that contain vegetables.

	Color	Quantity	Price
Capsicum	Red	12	60
Capsicum	Green	22	100

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Chilli	Red	50	40
Chilli	Green	65	55
Lime	Green	20	35

Write the code statement to the following:

- Find all rows with the label "Chilli". Extract all columns.
- List 2nd, 3rd and 4th rows.
- List only the columns Quantity and Price using loc.

32. Write the output of following queries.

- `mysql>SELECT POWER(9, 3);`
- `mysql>SELECT MID('SHUCHI GOYAL', 8, 5);`
- `mysql>SELECT RIGHT('Dushyant', 5);`

## SECTION D

33. A Gift Gallery has different stores in India. Database Administrator Abhay wants to maintain database of their Salesmen in SQL to store the data.

Consider the following records in 'Salesman' table and answer the given questions.

Table : Salesman					
Scode	Sname	Address	Dtofjoin	Sales	Area
100	Sushant	Delhi	2017/09/29	5000.90	East
101	Sushant	Gurgaon	2018/01/01	7000.75	East
102	Priya	Noida	2018/04/25	3450.45	West
103	Mohit	Delhi	2018/11/03	6000.50	North
104	Priya-nshi	Delhi	2019/12/15	8000.62	North

- Display Sname and Sales of East and West areas.
- Display the total Sales made in East Area.
- The command to display the Name of the Salesman along with the Sales amount rounded off to one decimal point.
- The command to display the length of salesman name.

34. Zeenat has created the following DataFrame dataframe 1 to keep track of data Rollno, Name, Marks1 and Marks2 for various students of her class, where row indexes are taken as the default values:

Rollno	Name	Marks1	Marks2
1	Swapnil Sharma	30	50
2	Raj Batra	75	45
3	Bhoomi Singh	82	95
4	Jay Gupta	90	95

- What will be the output of the following codes?
  - `print(dataframe1.size)`

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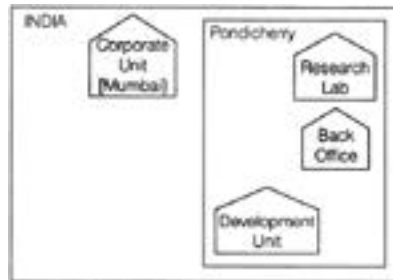
- (ii) `print(dataframe1['Rollno']==2)`
- (b) Write the code to print the highest marks obtained in Marks1 and Marks2.
- (c) Write the code to add new column “Marks3” with relevant data.

**or (option for part (c) only)**

Write the code for delete the 3rd column.

## SECTION E

35. Bias Methodologies is planning to expand their network in India, starting with three cities in India to build infrastructure for research and development of their chemical products. The company has planned to set up their main office in Pondicherry at three different locations and have named their offices as Back Office, Research Lab and Development Unit. The company has one more research office namely Corporate Unit in Murnbai. A rough layout of the same is as follows:



Approximate distance between these offices are as follows:

From	To	Distance
Research Lab	Back Office	110 m
Research Lab	Development Unit	16 km
Research Lab	Corporate Unit	1800 km
Back Office	Development Unit	13 km

In continuation of the above, the company experts have planned to install the following number of computers in each of their offices

Research Lab	158
Back Office	79
Development Unit	90
Corporate Unit	51

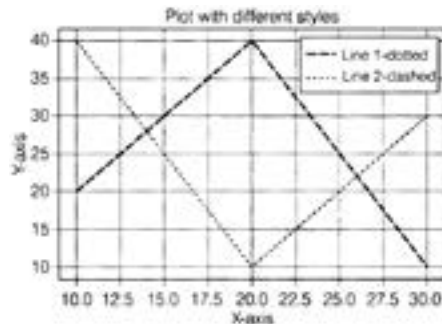
- (i) Suggest the type of network required (out of LAN, MAN, WAN) for connecting each of the following office units.
  - (a) Research Lab and Back Office
  - (b) Research Lab and Development Unit.
- (ii) Which one of the following device, will you suggest for connecting all the computers with in each of their office units?
  - (a) Switch/Hub
  - (b) Modem
  - (c) Telephone

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- (iii) Company is planning to get its website designed which will allow students to see their results after registering themselves on its server. Out of the static or dynamic, which type of website will you suggest?
- (iv) Suggest a cable/wiring layout for connecting the company's local office units located in Pondicherry. Also, suggest an effective method/technology for connecting the company's office unit located in Mumbai.
- (v) Which building is suitable to install the server with suitable reason?

36. Write the code for the following graph which display the different style multiline in same plot.



or

Write a Python code to create a line graph for the data given below based on TV SHOWS rated by the users.

```
Shows=["The Kapil Sharma Show", "Friends", "India has Got Talent", "Big Boss", "Dance India Dance"]
```

```
Rating=[4.2, 4.8, 5.0, 3.8, 4.1]
```

37. Consider the following records in 'Garment' table.

Table : Garment				
Gcode	Gname	Size	Color	Price
111	Tshirt	XL	Red	1400.00
112	Jeans	L	Blue	1600.00
113	Skirt	M	Black	1100.00
114	Jacket	XL	Blue	4000.00
115	Trousers	L	Brown	1500.00
116	LadiesTop	L	Pink	1200.00

Write the commands for (i) to (iv) and answer for (v)

- (i) To delete the record with Gcode as 116.
- (ii) Display the Gname and Price with price highest to lowest.
- (iii) To change the color of Garment with code as 116 to "Orange".
- (iv) To display the all details of table Garment.
- (v) What is the degree and cardinality of 'Garment' table?

or

Explain the given below functions:

- (i) INSTR()      (ii) DATE()      (iii) LENGTH()      (iv) SUM()      (v) MOD()

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