CAREERS360

PREPARATION Series

CUET UG – 2025

Computer Science Practice MCQs

CONTENTS

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A NOTE TO THE
STUDENT

When it comes to pursuing a career in Computer Science, the most prestigious Central Universities of India is one of the best institutes. Experienced faculties, amazing infrastructure and affordable fees are some of the major advantages of pursuing a computer science degree from the Central Universities. What should the candidate do to achieve this? Clear the highly competitive Central University Entrance Test (CUET) examination for the Computer Science courses. With less than one month for the examination, the candidates are required to give their maximum efforts to crack the CUET examination and secure admission to the Central Universities of the country.

This ebook contains the original previous year's question paper of the CUET UG Computer Science examination accompanied by elaborated solutions designed by experienced subject matter experts. Each question is followed by authentic solutions that are curated by seasoned Computer Science Subject Matter Experts with abundant experience. There are numerous advantages of practising this ebook. This includes getting familiarized with the examination format, practising authentic examination questions, checking the exam readiness of the candidates and assessing their time management skills and weak areas. We urge the candidates to make the most of this ebook.

Best Regards
Team Careers360

ABOUT
THE EBOOK

Through the contents of this ebook, the candidates can go through the previous year's questions which are taken from the following topics:

Topic 1: Exception and File Handling in Python: This section covers Exception Handling and File Handling in Python.

Topic 2: Database Concepts: Introduction to database concepts including the Relational data model, Relational algebra, Structured Query Language (SQL), Introduction to MySQL, Data Definition Language, Data Query Language, Data Manipulation Language, Math functions, Text functions, Date Functions, Aggregate Functions, Operations on Relations, and Database Query using SQL are discussed.

Topic 3: Computer Networks: Introduction to computer networks, Network types, Network devices, Network Topologies, Basic concept of MAC and IP Address, Difference between Internet and web, Stack, Stack (List Implementation), Queue, Queue (List Implementation), Searching techniques, Sorting techniques, Hashing, Understanding Data, Data and its purpose, Statistical methods, and Operations on Relations are covered.

Topic 4: Data Handling using Pandas: Introduction to Python libraries, Series and Data Frames in Pandas, Descriptive Statistics, DataFrame operations, Handling missing values, Importing/Exporting Data, Plotting Data using Matplotlib, Purpose of plotting, Types of plots, and Customizing plots are discussed.

Topic 5: Societal Impacts: This section covers Digital footprint, Etiquette for Net surfing, Intellectual Property Rights (IPR), Data Communication, Concept of communication, Communication Media, Network Protocol, Concept of Channel and Bandwidth, Security Aspects, Threats and prevention, and Network Security Concepts.

CUET UG COMPUTER SCIENCE PREVIOUS YEAR MCQs

1. Considering the given statement in Python Print("Hello world")

What type of error will be generated?

    A. Value Error
    B. Logical Error
    C. Name Error
    D. Syntax Error

Correct option: Name Error

Python is case-sensitive language and Print is not the same as print. Print is an built in function, but since Print is capitalized, Python raises a NameError because it cannot find a function or variable named Print.

2. The British scientist who invented the World Wide Web in 1990 is _____

    A. Allen Turing
    B. Claude Shanon
    C. Tim Berners Lee
    D. Herman Hollerith

Correct option: Tim Berners Lee

The World Wide Web was invented by Sir Tim Berners-Lee in 1989 while working at CERN in Switzerland. He developed the first web browser.

3. Read the following statements and arrange in correct order.

    A. Exception is raised
    B. Executes exception
    C. Program searches for exception handler
    D. Create exception object
    E. An error encountered

Choose the correct answer from the options given below:

    A. E -> D -> B -> C -> A
    B. E -> D -> A -> C -> B
    C. E -> D -> C -> A -> B
    D. A -> B -> C -> D -> E

Correct Option: The correct order of the statements is as follows: E -> D -> A -> C -> B

Explanation: - E. An error encountered: This is the initial stage where an error occurs during the execution of the program.

- D. Create exception object: After encountering an error, an exception object is created to represent the error condition.

- A. Exception is raised: Once the exception object is created, it is raised (thrown) by the Python interpreter.

- C. Program searches for exception handler: After the exception is raised, the program searches for an appropriate exception handler to handle the raised exception.

- B. Executes exception: Finally, the appropriate exception handler is executed to handle the raised exception

4. In SQL, like condition allows you to use wild card characters to perform matching. Which of the following is a valid wild card character?

A. #
B. +
C. *
D. %

Correct Option : %

In pattern matching, the LIKE operator, the percent sign (%) is a wildcard character used to match sequence of characters including zero.

Here's how it works:

- % matches any string of zero or more characters.
- For e.g, if you use LIKE 'app%', it will match any string that starts with 'app', such as 'apple', 'application', appropriate, etc.
- Similarly, if you use %le, it will match any string that ends with 'le', such as 'apple', 'table', 'people', etc.

5. Match List I with List II.

List I	List II
A. Data redundancy B. Data inconsistency C. Data Isolation D. Data dependency	I. Updating the structure of a data file requires modification in all the application programs accessing the file. II. Duplication of data at different III. Separation of resource or data modification made by different IV. Mismatch of data, maintained at different places.

Choose the correct answer from the options given below:

A.   A-IV, B-II, C-I, D-III
B.   A-II, B-IV, C-III, D-I
C.   A-II, B-IV, C-I, D-III
D.   A-III, B-I, C-II, D-IV

Correct Option : B : A-II, B-IV, C-III, D-I

A-   Duplicate storage of the same data across multiple rows or tables, increasing storage.
B-   conflicting information stored in different locations within the database, leading to wrong results.
C-   Ensuring transactions operate independently, preventing interference and maintaining consistency by controlling access and concurrency.
D-   Relationship between data elements where changes in one affect others, ensuring integrity and accurate retrieval.

6. Rohan starting working on MYSQL server. Kindly arrange the the following commands in a sequence so that he can create a table, then insert a record into it and display all the records.

A.   Insert into command
B.   Create database <databasename>;
C.   Create table command
D.   Use <databasename>;
E.   Select * from < tablename >;

Choose the correct answer from the options given below:

A. B D C A E
B. B A E D C
C. A B E D C
D. A C D B E

Solution-

Correct Option: B D C A E

1.   Database will be created
2.   Use that created Database
3.   Create table in created Database
4.   Insert Data into created Table
5.   Show inserted Data

7. _____ is not a DDL command.

A.   Drop
B.   Alter
C.   Update
D.   Create

Correct Option: Update

Data manipulation commands are used to retrieve, insert, update, and delete records. The UPDATE command changes existing data in a table by changing the values of one or more columns.

8. _____ is known as design of a database.

A. Constraints
B. Keys
C. Schema
D. Query

Correct Option: Schema

A schema is a logical container that defines the structure, organization, and relationships between database objects - tables, views, and constraints.

9. Mr. Sameer wants to connect 20 systems, which are present within a single hall. Help him choose the best device out of the following to achieve his purpose. [Note that the data arriving on any of the lines should be sent to the intended node/receiver only]

    A.   Repeater
    B.   Hub
    C.   Switch
    D.   Gateway

Correct Option: Switch

switch provides high-speed connectivity , data transmission. Each system can be connected directly to the switch.

10. In file mode ____, the file offset position is end of the file.

    A.   r
    B.   w
    C.   w+
    D.   a

Correct Option: a – append mode

If a file opened in append mode ("a"), the file offset position is primarily set to the end of the file. The data writtten to the file will be appended to the existing data, rather than overwriting it. If the file not found, a new file is created, and the file offset position is also set to the beginning of the file.

11. Choose the correct output of the following SQL query:
Select MID("SAVE ENVIRONMENT",6,7);

    A.   E ENVIR
    B.   ENVIRO
    C.   ENVIRON
    D.   ENVIRONMENT

Correct Option: ENVIRONMENT

It will return the substring starting from the 6th character of 'save environment' and taking 7 characters from that point.

12. A mobile connected to a laptop through USB is an example of

    A. LAN
    B. WAN
    C. MAN
    D. PAN

Correct Option: PAN

PAN (Personal Area Network) connects devices within a small area like a person's workspace enabling communication and data sharing, often wirelessly or through wired connections.

13. Which command is used to delete table from a database?

    A. Delete Table <tableName>;
    B. Drop Table <tableName>;
    C. Delete <tableName>;
    D. Drop Table <tableName> from <tableName>;

Correct Option: DROP TABLE <table_name>;

The DROP TABLE in SQL deletes a table from the database. Table structure and all its data permanently removed and not recoverable The syntax is DROP TABLE table_name;, where table_name is the name of the table to be deleted.

14. Match List I with List II

List I	List II
A. Browser B. Multiport modem C. Protocol D. BCC	I. SMTP II. Google Chrome III. Blind carbon copy IV. Hub

Choose the correct answer from the options given below:

    A. A-II, B-I, C-IV, D-III
    B. A-I, B-IV, C-II, D-III
    C. A-II, B-IV, C-I, D-III
    D. A-III, B-I, C-II, D-IV

Solution-

Correct Option: A-II B-IV C-I D-III

A - A browser is a software application used to access the World Wide Web, displaying web pages of a website.

B - A multiport modem is a device that connects multiple devices to a network, allowing them to access the internet through a single connection.

C- A protocol is a set of rules governing communication between devices, ensuring data transmission is standardized, reliable, and efficient.

D- BCC (Blind Carbon Copy) is an email feature allowing the sender to include recipients email addresses without their knowledge, maintaining privacy.

15. Given the following SQL string functions: middle( ), mid(), substr( ), substring()

Find the odd-one out.

- A-   mid( )
- B-   substr( )
- C-   middle( )
- D-   substring( )

Solution-

Correct Option: middle()

In SQL, there is no built-in middle() function

16. Given below are two statements:

Statement I.

When all the value are sorted in ascending or descending order, the middle value is called mode.

Statement II.

Value that appears most number of times in the given data of an attribute/variable is called mode.

In the light of the above statements, choose the correct answer from the options given below:

- A. Both statement I and Statement II are true
- B. Both statement I and Statement II are false
- C. Statement I is correct but statement II is false
- D. Statement I is incorrect but statement II is true

Solution-

Correct Option: statement I is incorrect but statement II is true.

- Statement I incorrectly defines mode as the middle value in sorted data. The correct term for the middle value is the median.
- Statement II accurately defines mode as the value that appears most frequently in a dataset.

17. Adjacent elements are compared and swapped in \qquad sorting technique.

- A. Bubble sort
- B. Insertion sort
- C. Selection sort

D. Adjacent sort

Solution-

Correct Option: Bubble Sort

In Bubble Sort, the algorithm repeatedly steps through the list, compares elements, and swaps them if in the wrong order. This process is going on until the entire list is sorted.

18. Which of the following statements are correct for Queue?

    A.   Queue is an ordered linear data structure
    B.   Deque can support both stack and queue operations
    C.   Queue is a non-linear data structure
    D.   Queue works on FILO principle
    E.   Deque is a version of Queue which does not allow insertion and deletion at both ends

Choose the correct answer from the options given below:

    A.   A and C only
    B.   A and B only
    C.   B and C only
    D.   A, B and E only

Solution-

Correct Option: A and B only

A. Queue is an ordered linear data structure.
    ● Correct. Queue maintains a specific order for its elements.

B. Deque can support both stack and queue operations.
    ● Correct. Deque (double-ended queue) can indeed support both stack and queue operations.

C. Queue is a non-linear data structure.
    ● Queue is actually a linear data structure.

D. Queue works on FILO (First-In-Last-Out) principle.
    ● Incorrect. Queue operates on the FIFO (First-In-First-Out) principle.

E. Deque is a version of Queue which does not allow insertion and deletion at both ends.
    ● Incorrect. Deque does allow insertion and deletion at both ends.

19. The default reference point for file-object.seek(offset,[reference point]) is:

    A.   0
    B.   -1
    C.   1
    D.   2

Solution-

Correct Option: 0

The default reference point for the file-object.seek(offset, [reference point]) method in Python is the beginning of the file.

if reference point is not specified, the offset parameter will be interpreted as an absolute position from the beginning of the file.

20. From a text file "myfile.txt", Kriti will read next line through file object Fl using

A. Fl.readlines( )
B. Fl.readline( )
C. Fl.readnext()
D. Fl.read()

Solution-

Correct Option: F1.readline()

▪ It reads characters from the current position in the file up to and including the next newline character ('\n').
▪ It returns the contents of that line as a string.
▪ The file object's internal pointer is then moved to the beginning of the next line in the file.

21. The postfix form of A**B+C//D is

A. AB/CD +
B. ABC+//D
C. ABB^()CD//+
D. ABCD+//*

Correct Option: A B * C D / +

Apply these steps to "A * B + C/D":

1. Infix Expression: A * B + C / D
2. Stack: (empty), Postfix Expression: (empty)
3. Scanning the expression:

    ○ A: Add A to postfix expression.
    ○ *: Push * onto the stack.
    ○ B: Add B to postfix expression.
    ○ +: Pop * from stack and add to postfix expression. Push + onto stack.
    ○ C: Add C to postfix expression.
    ○ /: Push / onto the stack.
    ○ D: Add D to postfix expression.

4. After scanning the entire expression, pop any remaining operators from the stack and add them to the postfix expression.
    ○ Pop / from stack and add to postfix expression.

○ Pop + from stack and add to postfix expression.

5. Postfix expression: A B * C D / +

22. The file offset position of a file opened in r mode is:

A. End of the file
B. Beginning of the file
C. Anywhere in the file
D. One byte before the end of the file

Solution-

Correct Option: beginning of the file

The file offset position of a file opened in read mode (<r>) is at the beginning of the file. When file is opened in read mode, the file pointer is positioned at the start of the file, letting to read the contents of file from the beginning.

23.. Consider the following python code: def myDiv (x,y) :

" if " y==0" : "
raise ZeroDivisionError
return x/y
What is the output of the following?
n=myDiv(4,0)
print(n)

A. A: 0.0
B. B: No output
C. C: ZeroDivisionError
D. D: ValueError

Correct Option: Zero division error

Above code defines a function myDiv(x, y) that divides x by y, where y is zero by raising a ZeroDivisionError. Then, it calls the function myDiv with arguments 4 and 0, ZeroDivisionError is raised.

24. Communication mode allows communication in both directions simultaneously.

A. A: Simplex
B. B: Half duplex
C. C: Full duplex
D. D: Half simplex

Correct Option: Full duplex

Full duplex allows communication in both directions to enable devices to send and receive data parallellery without needing to alternate.

25. Choose the advantages of a database over file system from the following statements.

    A.   Reduces data redundancy and saves storage.
    B.   Sharing of data is possible.
    C.   Difficult to access the data in formatted way.
    D.   Data inconsistency is reduced to larger extent
    E.   Databases are not portable.

Choose the correct answer from the options given below:

    A.   A: B, C, and D only
    B.   B: A, B and D only
    C.   C: A, B and E only
    D.   D: A, C and D only

Correct Option: A, B and D

The advantages of a database over a file system are:
It reduces data redundancy. Sharing of data is possible. Data inconsistency is reduced to a larger extent.

26. The like operator makes use of two wild card characters underscore (0 and %. Which of the following statement(s) is/are correct w.r.t these operators?

    A.   % represents zero, one or multiple characters
    B.   Underscore represents zero, one or multiple characters
    C.   Underscore represents only multiple characters
    D.   Underscore represents exactly a single character
    E.   % represents zero character

Choose the most appropriate answer from the options given below:

    A.   A: A and D only
    B.   B: A and C only
    C.   C: A only
    D.   D: B and E only

Correct Option: A and D only

% and _ characters are used as wildcard characters in conjunction with the LIKE operator for pattern matching within strings.
   ● % (percent sign): Represents zero, one, or multiple characters. For example, 'abc% ' matches any string starting with 'abc ', such as 'abcd ', 'abc123 ', etc.
   ● _ (underscore): Represents exactly a single character. For example, 'a_c ' matches 'abc ', 'adc ', 'aec ', etc., but not 'abcd ' or 'a123c '.

27. ABC fitness centre has computerized their Gym by keeping details of their Trainees in Trainer table and clients in Customer table which are as follows:

Table: Trainer

TId	TName	Activity	Salary	Dt_Appoint
G101	Manish	Kick Boxing	18000	2020-10-12
G102	Sachin	Core	22000	2021-06-09
G103	Aahan	Core	25000	2020-05-30
G104	Aparna	Zumba	15000	2021-11-12
G105	Nitin	Yoga	20000	2022-02-15

Table: Customer

CId	Cust_Name	Gender	TId	Fee	Membership
C1	Sabina	F	G101	10000	12
C2	Rohit	M	G101	9000	10
C3	Asad	M	G102	12000	15
C4	John	M	G103	6000	6
C5	Aastha	F	G104	8000	8
C6	Neha	F	G102	9000	10
C7	Zubain	M	G102	10000	12
C8	Deljeet	F	G104	6000	6

Answer the questions based on above tables.

Choose correct SQL query to
Display the details of all male customers having membership more than 10
Months.

A: Select * from Customer
Where Gender= " M " and Membership >10;

B: Select CId, CName, Fee from Customer
Where Gender="M" and Membership>"10";

C: Select * from Customer
Where Gender="Male" and Membership <10;

D: Select * from Customer
Where Gender=" M " or Membership >10;

Solution -

Correct Option: Select * from Customer

where Gender= "M " and Membership >10;

In above query:

(*) will select all columns from the customers table.
Using the WHERE clause:
gender = 'male ' only male customers are included.
membership_duration > 10 ensures that only customers with a membership
duration greater than 10 months are included.

28. ABC fitness centre has computerized their Gym by keeping details of their Trainees in Trainer table and clients in Customer table which are as follows:

Table: Trainer

TId	TName	Activity	Salary	Dt_Appoint
G101	Manish	Kick Boxing	18000	2020-10-12
G102	Sachin	Core	22000	2021-06-09
G103	Aahan	Core	25000	2020-05-30
G104	Aparna	Zumba	15000	2021-11-12
G105	Nitin	Yoga	20000	2022-02-15

Table: Customer

CId	Cust_Name	Gender	TId	Fee	Membership
C1	Sabina	F	G101	10000	12
C2	Rohit	M	G101	9000	10
C3	Asad	M	G102	12000	15
C4	John	M	G103	6000	6
C5	Aastha	F	G104	8000	8
C6	Neha	F	G102	9000	10
C7	Zubain	M	G102	10000	12
C8	Deljeet	F	G104	6000	6

Choose correct SQL query to display total customers under each trainer in the Gym.

A: Select TId,TName, count(*) from Customer
 Where Trainer. TId= Customer. TId;

B: Select TName, count(*) from Customer group by TId;

C: Select TId, count(*) from Customer group by TId;

D: Select TId, count(CId) from Customer
 Where Trainer.TId= Customer.TId;

Correct Option: Select TId, count(*) from Customer group by TId;

SELECT TId, COUNT(*): This part of the query selects the TId column from the Customer

table and counts the number of rows (customers) for each distinct TId.

FROM Customer: This specifies that we are selecting data from the Customer table.

GROUP BY TId: Groups the results by the TId column to ensures that the count of customers

is considered separately for each unique trainer ID.

29. ABC fitness centre has computerized their Gym by keeping details of their Trainees in Trainer table and clients in Customer table which are as follows:

Table: Trainer

TId	TName	Activity	Salary	Dt_Appoint
G101	Manish	Kick Boxing	18000	2020-10-12
G102	Sachin	Core	22000	2021-06-09
G103	Aahan	Core	25000	2020-05-30
G104	Aparna	Zumba	15000	2021-11-12
G105	Nitin	Yoga	20000	2022-02-15

Table: Customer

CId	Cust_Name	Gender	TId	Fee	Membership
C1	Sabina	F	G101	10000	12
C2	Rohit	M	G101	9000	10
C3	Asad	M	G102	12000	15
C4	John	M	G103	6000	6
C5	Aastha	F	G104	8000	8
C6	Neha	F	G102	9000	10
C7	Zubain	M	G102	10000	12
C8	Deljeet	F	G104	6000	6

Choose correct SQL query to display the names of all trainees with their date of appointment in descending order, who are taking core activity.

A: Select TName, Dt_Appoint from Trainer
 Order by Dt_Appoint desc
 Where Activity="Core";

B: Select TName, Dt_Appoint from Trainer
 Where Activity="Core"
 Order by Dt_Appoint desc;
 C: Select TName, Dt_Appoint from Trainer
 Order by Dt_Appoint desc
 Having Activity="Core";

D: Select TName, Dt_Appoint from Trainer
 Where Activity="Co "
 Order by desc Dt_Appoint;

Correct Option: SELECT Tname, Dt_Appoint FROM Trainer WHERE Activity = 'Core ' ORDER BY Dt_Appoint DESC;

Select the name and Dt_Appoint columns from the Trainer table.
WHERE clause to filter the rows where the Activity is 'Core '.
ORDER BY clause to sort the results by the Dt_Appoint column in descending order.

30. ABC fitness centre has computerized their Gym by keeping details of their Trainees in Trainer table and clients in Customer table which are as follows:

Table: Trainer

TId	TName	Activity	Salary	Dt_Appoint
G101	Manish	Kick Boxing	18000	2020-10-12
G102	Sachin	Core	22000	2021-06-09
G103	Aahan	Core	25000	2020-05-30
G104	Aparna	Zumba	15000	2021-11-12
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Table: Customer

CId	Cust_Name	Gender	TId	Fee	Membership
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C4	John	M	G103	6000	6
C5	Aastha	F	G104	8000	8
C6	Neha	F	G102	9000	10
C7	Zubain	M	G102	10000	12
C8	Deljeet	F	G104	6000	6

Choose correct SQL query to update the membership of all the customers, under Trainer with code G101 and G102, to 12 months.
A: Update Customer
 Set Membership
 Where TId="G101" or TId="G102";

B: Alter table Customer
 Add Membership
 Where TId="G101" or TId="G102";

C: Update Customer
 Set Membership
 Where TId="G101" and TId="G102";

D: Update Customer
 Add Membership
 Where TId="G101" or TId="G102";

Solution - UPDATE Customer SET Membership = 12 WHERE TiD="G101" or Tid="G102";

UPDATE Customer indicates to update records in the Customer table.
SET Membership = 12 means to set the value of the Membership column to 12 for the records that meet the specified conditions.
WHERE TiD = 'G101 ' OR Tid = 'G102 ' sets the condition for which records to update. It states that we want to update the membership to 12 for records where either the TiD column is 'G101 ' or the Tid column is 'G102 '.

31. ABC fitness centre has computerized their Gym by keeping details of their Trainees in Trainer table and clients in Customer table which are as follows:

Table: Trainer

TId	TName	Activity	Salary	Dt_Appoint

G101	Manish	Kick Boxing	18000	2020-10-12
G102	Sachin	Core	22000	2021-06-09
G103	Aahan	Core	25000	2020-05-30
G104	Aparna	Zumba	15000	2021-11-12
G105	Nitin	Yoga	20000	2022-02-15

Table: Customer

CId	Cust_Name	Gender	TId	Fee	Membership
C1	Sabina	F	G101	10000	12
C2	Rohit	M	G101	9000	10
C3	Asad	M	G102	12000	15
C4	John	M	G103	6000	6
C5	Aastha	F	G104	8000	8
C6	Neha	F	G102	9000	10
C7	Zubain	M	G102	10000	12
C8	Deljeet	F	G104	6000	6

Choose the correct SQL query to display a report showing Trainer name, Salary, Customer name and Fee for all Trainers having salary between 20000 to 25000 .
A. Select TName, Salary, Cust_Name, Fee
From Customer C, Trainer T⁻
Where T.TId = C. TId and Salary >=20000 and Salary <=25000;

B. Select TName , Salary, Cust_Name, Fee
From Customer, Trainer
Where Customer.TId=Trainer.TId and Salary between 20000 and 25000;

C. Select TName, Salary, C_Name, Fee
From Customer C, Trainer T
Where C.TId = T.TId and Salary between 20000 and 25000;

D. Select TName, Salary, C_Name, Fee
From Customer, Trainer
Where C.TId = T.TId and 20000<= Salary <=25000;

E. Select TName, Salary, Cust Name, Fee
From Customer C, Trainer T⁻
Where T.TId = C.TId and Salary between 20000 and 25000;
Choose the most appropriate answer from the options given below :

1. A: A,B and C only
2. B: A,D and E only
3. C: B,C and E only
4. D: A,B and E only

Solution- A, B and E only

Option A: Incorrect. It incorrectly references Cust_Name instead of Cust_Name and doesn't have proper table aliases.

Option B: Correct. It joins the Customer and Trainer tables correctly and uses the BETWEEN operator for the salary range.

Option E: Correct. It joins the Customer and Trainer tables correctly and uses the BETWEEN operator for the salary range.

32. _____type is returned by the readlines ( ) method of the file object.

A: String
B: Tuple
C: List of strings
D: Dictionary

Solution- list of strings

The readlines() method of the file object reads all lines in the file and returns them as a list.

Each element of the list corresponds to a line in the file, and each element is a string.

Return type is a list containing strings, making it a list of strings.

33. What is the length of MAC Address in bits?

1. A: 48 bits
2. B: 64 bits
3. C: 24 bits
4. D: 72 bits

Solution: 48 Bits

A MAC (Media Access Control) address is a unique identifier assigned to network interfaces for communications on the physical network.

34. Given below are two statements: one is labelled as Assertion A and other is labelled as Reason R.

Assertion A: Wi-Fi gives users the flexibility to move around within the network area while being connected to the network.
Reason R: Wireless network connects communicating devices to each other without any wire.
In the light of the above statements, choose the most appropriate answer from the options given below:

A: Both A and R are correct and R is the correct explanation of A

B: Both A and R are correct and R is not the correct explanation of A
C: A is correct but R is not correct
D: A is not correct but R is correct

Solution: Both A and R are correct and R is not the correct explanation of A
Assertion A states that Wi-Fi provides users with the flexibility to move around within the network area while remaining connected. This is true.
Reason R states that a wireless network connects communicating devices to each other without any wires. This is also true.

However, Reason R does not directly explain why Wi-Fi provides users with the flexibility to move around within the network area. The ability to move around is due to the wireless nature of the network, but this is not explicitly explained by Reason R. Therefore, while both statements are correct, Reason R is not the correct explanation of Assertion A.

35. Choose the Network Topology that requires a central controller.

1. A: Bus
2. B: Star
3. C: Mesh
4. D: Tree

Solution: Star Topology

In a Star topology, all nodes are connected to a central device, often called a hub or switch. This central device serves as a controller, managing the communication between all the nodes in the network. If the central device fails, the entire network may become inaccessible.

Q36. ____ is world wide interoperability for microwave access, uses a larger spectrum to deliver connections to various devices.

1. A: Wi-Fi
2. B: Wireless MAN
3. C: WiMax
4. D: Microwave

Solution: WiMax

WiMax stands for Worldwide Interoperability for Microwave Access. It is a wireless communication technology that uses a larger spectrum to deliver connections to various devices over long distances. WiMax can provide broadband wireless access (BWA) in both fixed and mobile applications.

37. Examples of Guided media are _____

A. Radio Waves
B. Optical-fiber
C. Micro waves
D. Twisted pair
E. Coaxial cable

Choose the correct answer from the options given below:

A.   A: A,B, and D only
B.   B: B,C and D only
C.   C: B,D and E only
D.   D: B,C and E only

Solution: B, D and E only

Guided media refers to the types of media that use physical cables or wires to transmit signals.
Examples of guided media are:
Optical-fiber (B)

Twisted pair (D)
Coaxial cable (E)
Radio waves (A) and micro waves (C) are examples of unguided or wireless media, as they do not rely on physical cables for signal transmission.

38. The mid point of the sorted list is important in ____

A.   A: Binary search
B.   B: Linear search
C.   C: Insertion sort
D.   D: Sequential search

Solution: Binary Search

Binary search is a search algorithm used to find the position of a target value within a sorted array by repeatedly dividing the search interval in half.

39. def insertion_sort(list3):
```
  n = len(list3)  # Statement-1
  for i in range(1, n):  # Statement-2
    temp = list3[i]  # Statement-3
    j = i - 1
    while j >= 0 and list3[j + 1] < list3[j]:  # Statement-4
      list3[j + 1] = list3[j]  # Statement-5
      j -= 1
    list3[j + 1] = temp
```

Given the following options for the statements.

A.   temp < list3[j]
B.   list3[i]
C.   list3[j+1]
D.   range(n)
E.   j-1

Choose the correct sequence of statement.

A. D -> B -> E -> A -> C
B. D -> B -> A -> E -> C
C. B -> D -> A -> E -> C
D. B -> A -> D -> E -> C

Solution: B --> D --> A --> E --> C
 The correct sequence of statements for the given function insertion_sort would be:

3. B --> D --> A --> E --> C

Explanation:

- Statement 1 (B) iterates over the range of n, representing the length of the list.
- Statement 2 (D) assigns the current element of the list to the variable temp.
- Statement 3 (A) checks if j is greater than or equal to 0 and if the value of temp is less than the value at list3[j].
- Statement 4 (E) decrements the value of j by 1.
- Statement 5 (C) updates the value at list3[j+1] to the value at temp.

40. Which of the following is (are) attribute(s) of file object?

A. closed
B. mode
C. next
D. name
E. tell

Choose the correct answer from the options given below:

A. A: B and D only
B. B: D only
C. C: B, D and E only
D. D: A, B and D only

Solution: B, D and E only

B. mode:
The mode attribute of a file object represents the mode with which the file was opened.
It indicates whether the file was opened for reading, writing, or both, and in text mode or
binary mode.

For example, if a file was opened with the mode "r " for reading or "w " for writing, these values will be
stored in the mode attribute.

D. name:
The name attribute of a file object represents the name of the file.
For files opened from the filesystem, this attribute contains the file's pathname.

For example, if a file named "example.txt " was opened, "example.txt " would be stored in the name attribute.

E. tell:

The tell() method of a file object returns the current position (in bytes) of the file cursor. It indicates the byte offset from the beginning of the file where the next read or write operation will occur.

For example, if the tell() method returns 100, it means the file cursor is currently positioned.

41. Case study based question

An Educational Institute in Delhi make use of DBMS to store details of students. The institute maintains a database named 'school-record' under which there are two tables.

1. Student table: maintains general details of every student enrolled in the school
2. Stulibrary Table: To store the details of issued books.

* BookID is the unique identification number of each book.
* Minimum issue duration of a book is one day.

Student	
Field	Type
StuID	Numeric
StuName	Varchar(20)
StuAddress	Varchar(50)
StuFatherName	Varchar(20)
StuContact	Numeric
StuAadhar	Numeric
StuClass	Varchar(5)
StuSection	Varchar(1)

Stulibrary	
Field	Type
BookID	Numeric
StuID	Numeric
Issued_date	Date
Return_date	Date

Identify the SQL query which displays the data of table Stulibrary in ascending order of student ID.

A.   A: Select * from Stulibrary order by BookID;
B.   B: Select * from Stulibrary order by StuID ascending;
C.   C: Select * from Stulibrary order by StuID Asc;
D.   D: Select * from Stulibrary order by StuID DESC;

Solution: SELECT * FROM Stulibrary ORDER BY StuID ASC;

1. SELECT *: This selects all columns from the Stulibrary table.
2. FROM Stulibrary: Specifies the table from which the data will be retrieved, which is the Stulibrary table in this case.
3. ORDER BY StuID ASC: Orders the results based on the StuID column in ascending order (ASC stands for ascending). This means that the records will be arranged in increasing order of student IDs.

42. Case study based question

An Educational Institute in Delhi make use of DBMS to store details of students. The institute maintains a database named 'school-record' under which there are two tables.

1.   Student table: maintains general details of every student enrolled in the school
2.   Stulibrary Table: To store the details of issued books.

* BookID is the unique identification number of each book.
* Minimum issue duration of a book is one day.

Student	
Field	Type
StuID	Numeric
StuName	Varchar(20)
StuAddress	Varchar(50)
StuFatherName	Varchar(20)
StuContact	Numeric
StuAadhar	Numeric
StuClass	Varchar(5)
StuSection	Varchar(1)

Stulibrary	
Field	Type
BookID	Numeric
StuID	Numeric

Issued_date	Date
Return_date	Date

The primary key of Stulibrary table is/are:

- A. A: BookID
- B. B: BookID, StuID
- C. C: BookID, Issued_date
- D. D: Issued_date

Solution: BookID and StuID

a primary key is a unique identifier for each record in a database table. It ensures that each row in the table is distinct and can be easily identified. It's like a fingerprint for each record, allowing quick and accurate retrieval of specific data.

43. Case study based question

An Educational Institute in Delhi make use of DBMS to store details of students. The institute maintains a database named 'school-record' under which there are two tables.
1. Student table: maintains general details of every student enrolled in the school
2. Stulibrary Table: To store the details of issued books.

* BookID is the unique identification number of each book.
* Minimum issue duration of a book is one day.

Student	
Field	Type
StuID	Numeric
StuName	Varchar(20)
StuAddress	Varchar(50)
StuFatherName	Varchar(20)
StuContact	Numeric
StuAadhar	Numeric
StuClass	Varchar(5)
StuSection	Varchar(1)

Stulibrary	
Field	Type
BookID	Numeric

StuID	Numeric
Issued_date	Date
Return_date	Date

Which of the following SQL query will fetch ID of those issued books which have not been returned?

A.   A: Select BookID from Stulibrary where BookID is NULL;
B.   B: Select BookID from Stulibrary where StuID is NULL;
C.   C: Select BookID from Stulibrary where Issued_date is NULL;
D.   D: Select BookID from Stulibrary where Return_date is NULL;

Solution: SELECT BookID FROM Stulibrary WHERE Return_date IS NULL;
This query selects the BookID from the Stulibrary table.

It specifies the condition WHERE Return_date IS NULL, which filters the records to only include those where the Return_date is NULL, indicating that the book has not been returned yet.

44. Case study based question

An Educational Institute in Delhi make use of DBMS to store details of students. The institute maintains a database named 'school-record' under which there are two tables.
 1.   Student table: maintains general details of every student enrolled in the school
 2.   Stulibrary Table: To store the details of issued books.

* BookID is the unique identification number of each book.
* Minimum issue duration of a book is one day.

Student	
Field	Type
StuID	Numeric
StuName	Varchar(20)
StuAddress	Varchar(50)
StuFatherName	Varchar(20)
StuContact	Numeric
StuAadhar	Numeric
StuClass	Varchar(5)
StuSection	Varchar(1)

Stulibrary	
Field	Type
BookID	Numeric
StuID	Numeric
Issued_date	Date
Return_date	Date

The alternate key for Student table will be_____

A. A: StuName
B. B: StuContact
C. C: StuAadhar
D. D: StuClass

Solution: StuAadhar

The alternate key for the Student table would typically be a unique identifier other than the primary key. Since the Student table already has a primary key (StuID), an appropriate alternate key could be another unique identifier, such as StuAadhar (Aadhar number), assuming each student has a unique Aadhar number.

45. Case study based question

An Educational Institute in Delhi make use of DBMS to store details of students. The institute maintains a database named 'school-record' under which there are two tables.
1. Student table: maintains general details of every student enrolled in the school
2. Stulibrary Table: To store the details of issued books.

* BookID is the unique identification number of each book.
* Minimum issue duration of a book is one day.

Student	
Field	Type
StuID	Numeric
StuName	Varchar(20)
StuAddress	Varchar(50)
StuFatherName	Varchar(20)
StuContact	Numeric
StuAadhar	Numeric
StuClass	Varchar(5)

StuSection	Varchar(1)

Stulibrary	
Field	Type
BookID	Numeric
StuID	Numeric
Issued_date	Date
Return_date	Date

Which of the following SQL queries will display dates on which number of issued books is greater than 5 ?

A. A: Select Issued_date from Stulibrary group by Issued_date where count⟦fo⟧(*)>5;
B. B: Select Issued_date from Stulibrary group by Return_date having count (*)>5;
C. C: Select Issued_date from Stulibrary group by Issued_date having count⟦fo⟧(*)>5;
D. D: Select Issued_date from Stulibrary group by Return_date where count (*)>5;

Solution: SELECT Issued_date FROM Stulibrary GROUP BY Issued_date HAVING COUNT(*) >5;
Above query selects the Issued_date from the Stulibrary table.
It uses the GROUP BY clause to group the records by Issued_date.
The HAVING clause is then used to filter the groups to only include those where the count of records (number of issued books) is greater than 5.

46. Identify primary key in the given table student:

Name	AdmNo	Class	Section
Ankit	101	X	A
Anuj	102	XII	B
Bhanu	103	XII	A
Babita	104	XI	B
	105	XII	C

A. A: Name
B. B: AdmNo
C. C: Section
D. D: Class

Solution: AdmNo
a primary key is a unique identifier for each record in a database table. It ensures that each row in the table is distinct and can be easily identified. It 's like a fingerprint for each record, allowing quick and accurate retrieval of specific data.

47. If a table has 5 tuples and 7 attributes, then what will be the degree and cardinality of the table?

    A. A:Degree =7,   Cardinality =5
    B. B: Degree =7,   Cardinality =7
    C. C: Degree =5,   Cardinality =5
    D. D: Degree =5,   Cardinality =7

Solution: Degree 7, Cardinality 5

Degree:
Degree refers to the number of attributes or columns in a relation or table.

Cardinality:
Cardinality refers to the number of tuples or rows in a relation or table.

48. Find the output:

```
s=  "CuEt#2022"
 f = open("new.Txt", "w+")
 f.write(s)
 f.seek(0)
 f.read(9)
 for i in c :
         if i.isupper( ):

                 print(i.lower( ), end="#")
         elif i.islower( ) :
                  print(i.upper( ), end="#")

         elif int(i).isdigit( ) :

                 print(int(i) +1 , end="#")
         else:
                 print("$", end ="#")

f.close( )
```

    A. A: c#U#e#T#2#0#2#2#
    B. B: C#u#E#t##3#1#3#3#
    C. C: c#U#e#T#$#3#1#3#3#
    D. D: C#u#e#t###2#0#2#2#

Solution: c#U#e#T#$#3#1#3#3#

Q49. Consider the table given below.

TableA		
SNo	Name	Class
1	Mehek	8A
2	Mahira	6A
3	Lavanya	7A
4	Sanjay	7A
5	Abhay	8A

Table B		
SNo	Name	Class
1	Aastha	7A
2	Mahira	6A
3	Mohit	7B
4	Sanjay	7A

Table C		
SNo	Name	Class
1	Mehek	8A
3	Lavanya	7A
5	Abhay	8

Identify the operation applied to the given tables to get the given output

- A. A: TableA X TableB
- B. B: TableA U TableB
- C. C: TableA - TableB
- D. D: TableA ∩ TableB

Solution: TableA − TableB

Set difference, denoted by A−B, refers to the operation that returns elements present in set A but not in set B. In the context of databases, it retrieves rows from the first table (set) that are not present in the second table (set). This operation helps to identify the unique elements or rows in one set compared to another.

50. Consider the given text file 'pledge.txt'

> **India is my country.**
>
> **All Indian are my brothers and sisters**

```
open('pledge.txt', 'r')      #Statement 1
line  f.readlines ()         #Statement 2
print(len(line))   #Statement 3
f.close( )                   #Statement 4
```

Identify the correct output, will be given by statement 3 .

    A.   A: 62
    B.   B: 60
    C.   C: 1
    D.   D: 2

Solution: 2

The correct output given by Statement 3 will be 2. This is because the readlines() method reads each line of the file into a list, and in the given text file 'pledge.txt ', there are two lines. Therefore, len(line) will return 2, indicating the number of lines in the file.

51. Write the output of the given statement on the basis of given Pandas series; ' s '.

    A.   a 2
    B.   b 4
    C.   c 6
    D.   d 8
    E.   e 10
    F.   f 12

print(s[:3])

A. a   2

b   4

B. a   2

b   4

c   6

d   8

C. a   2

b   4

c	6		

D. d   8

e   10

f   12

Solution: a   2

b   4

c   6

In pandas, s[:3] selects the first three elements of the Series s. This is known as slicing in pandas. It returns a new Series containing the selected elements.

52.

0	2317	Sedan	300000
1	1543	Luxury	400000
2	2054	Hatch back	1000000
3	1669	4xx4	700000

- A.   sep
- B.   end
- C.   header
- D.   Head

Solution: Header

Setting header=None tells pandas to not consider the first row as column headers and instead assigns default column names.

53. Which package/software is most suitable to create the CSV file?

- A.   Any word processing
- B.   Any spreadsheet package
- C.   Any Presentation package
- D.   Any Database software

Solution: Any spreadsheet package

CSV in pandas is like to spreadsheets: it organizes tabular data with rows and columns, supports import/export, and enables data manipulation, akin to spreadsheet functionalities.

54. Consider a dataframe 'df', which statement(s) is(are) incorrect w.r.t. df operations?

A. df['x'] = [10, 20, 30], will add a new column 'x' to dataframe df.
B. df.loc['x'] = [30, 40, 70], will add a new column 'x' to dataframe df.
C. df['x'] = [10, 20, 30], will add a new row to the dataframe df.
D. df.loc['x'] = [30, 40, 70], will always add a new row to the dataframe df.
E. df.drop('x', axis=0), will delete the row with label 'x' from the dataframe df.

Choose the correct answer from the options given below:

A. B, C and D only
B. A and E only
C. B and E only
D. C only

Solution: B and E Only

df.loc['x']=[30,40,70 - This should add a new row, not a new column.

df.drop('x', axis=0), The axis should be specified as 1 for column-wise deletion, not 0

55. Consider the table given below:
Table: STUDENT

ADM		NAME	CLASS
1		Anshuman	
2		Arun Lal	
3		Sachin	
4		Kapil	
5		Sunil	
6		Virat	

Based on the above table, which command will give the following result:

CLASS	No of students
	3
	2

A. Select CLASS, Count (**) From STUDENT Group by CLASS;'

B. Select CLASS, Count (**) 'No of students'

From STUDENT

GROUP by CLASS;

C. SELECT CLASS,COUNT(No of students)

FROM STUDENT

Group By CLASS

Having count(*)>1;

D. SELECT CLASS,COUNT (**) 'No of students'

FROM STUDENT

Group By CLASS

Having count(*)>1;

Solution:

SELECT CLASS, COUNT(*) "No of students" FROM STUDENT

GROUP BY CLASS Having count(*)>1;

1. SELECT CLASS, COUNT(*) "No of students": This part selects the CLASS column and counts the number of records (students) for each class. The alias "No of students" is assigned to the count result.
2. FROM STUDENT: Specifies the table from which the data will be retrieved, in this case, the STUDENT table.
3. GROUP BY CLASS: Groups the records based on the CLASS column, so that the subsequent aggregate function (COUNT(*)) operates on each group separately.
4. HAVING count(*) > 1: This clause filters the grouped results to only include groups (classes) where the count of students is greater than 1. It is similar to the WHERE clause but is used with aggregate functions on grouped data.

56. Consider the table given below;
Table : STUDENT

ADNNO	NAME	CLASS	SCORE
A001	Amit		90
A002	Amit		91

A003	Bhavana		90
A004	Yamini		89
A005	Ashok		95

Which of the following command will display all the records according to their names in descending order and their scores in descending order ?

A. SELECT * FROM STUDENT ORDER BY NAME, SCORE DESC;
B. SELECT ** FROM STUDENT ORDER BY NAME AND SCORE DESC;
C. SELECT * FROM STUDENT ORDER BY NAME DESC, SCORE DESC;
D. SELECT ** FROM STUDENT ORDER BY NAME DESC AND SCORE DESC;

Solution: SELECT * FROM STUDENT ORDER BY NAME DESC, SCORE DESC;

ORDER BY NAME DESC-This means that names will be arranged from Z to A alphabetically.

ORDER BY SCORE DESC- The records will be arranged from the highest score to the lowest score.

57. Given are the two statements: one is lebelled as Assertion A and the other is labelled as Reason R.

Assertion A: We need to install matplotib for creating graphs using the command:

pip install matplotlib

Reason R: For plotting using matplotlib, we need to import pyplot module using: import matplotlib.pyplot as plt

In the light of the above statements, choose the correct answer from the options given below.

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

Solution: Both A and R are true and R is the correct explanation of A

Reason statement provides the correct syntax for importing the pyplot module from matplotlib, which is necessary for creating plots, so R is the correct explanation of Assertion.

58. Match List I with List II

List I	List II

A. E-waste	I. Minimize the purchase according to need only
B. Reduce	II. Devices that are no longer in use.
C. Reuse	III. Conversion of devices into something to use again and again
D. Recycle	IV. Process of re-using the waste after modification.

Choose the correct answer from the options given below:

A. A-III, B-II, C-I, D-IV
B. A-II, B-I, C-III, D-IV
C. A-II, B-I, C-IV, D-III
D. A-I, B-III, C-II, D-IV

Solution: A-II, B-I, C-III, D-IV

E-waste: Rejected electronic devices.

Reduce: Use less, buy wisely.

Reuse: Repurpose items, extend lifespan.

Recycle: Convert waste into reusable material.

59. _____ was the first Web browser developed by the National Centre for Supercomputing Application (NCSA).

A. Mozilla Firefox
B. Opera
C. Mosaic
D. Google Chrome

Solution: Mosaic

Mosaic was the first Web browser developed by the National Centre for Supercomputing Application (NCSA).

60. Ms. Bhavika wants to change the index of the dataframe and the output for the same is given below:

	Name	Stream
student1	ananya	humanities
student2	bhavya	humanities

Identify the correct statement to change the index.

A. d1.index['student1', 'student2']
B. d1.index = ['student1', 'student2']

C. d1.index[ ]= ['student1', 'student2']
D. d1.index ( )= ['student1', 'student2']

Solution: d1.index = ['student1', 'student2']

DataFrame named "d1" to change its index to 'student1' and 'student2'.

61. In data science for data analysis, which of the python library are more popular?

A. Swift
B. Django
C. Open office
D. Pandas

Solution: Pandas

Pandas: Used for data manipulation and analysis, especially with tabular data.

62. Which malware is used to generate revenue for its developer?

A. Spyware
B. Adware
C. Trojan
D. Ransomware

Solution: Ransomware

Ransomware is a type of malicious software (malware) that encrypts files or locks users out of their devices and demands a ransom payment, Attacker can target individuals, businesses, or organizations

63. A. _____ is a hacker with an aim to bring about political and social change.

A. White hats
B. Hacktivist
C. Black hats
D. Grey hats

Solution: Hacktivist

Hacktivist is someone who uses computer hacking skills to try to promote social or political change.

64. Find output for the following:

Select substr("Every cloud has a silver lining", 7,5);

A. cloud
B. cloud has a silver lining
C. Every c
D. Very

Solution: Cloud

It will extract from the 7th character ("c") and takes the next 5 characters, resulting in "cloud".

65. Find the output of the following

```
import numpy as np
pencil = np.array([10, 20, 30])
eraser = np.array([40, 50, 70])
pen = np.array([11, 16, 17, 18])
import pandas as pd
Stationary = pd.DataFrame([pencil, pen, eraser], columns=['AB', 'CD', 'EF', 'GH'])
print(Stationary)
```

A.

	AB	CD	EF	GH
0	10	20	30	NaN
1	11	16	17	18
2	40	50	70	NaN

B.

AB	CD	EF	GH	
0	10	20	30	No value
1	11	16	17	18
2	40	50	70	No value

C.

AB	CD	EF	GH	
0	10	20	30	0
1	11	16	17	18
2	40	50	70	0

D.

AB	CD	EF	GH	
1	11	16	17	18
1	11	16	18	

Solution: AB CD EF   GH

       0 10 20 30 NaN

       1 11 16 17 18

       2 40 50 70 NaN

- import numpy as np: Imports the NumPy library
- import pandas as pd: Imports the Pandas library
- pencil = np.array([10, 20, 30]): Creates a NumPy array named pencil
- eraser = np.array([40, 50, 70]): Creates a NumPy array named eraser
- pen = np.array([16, 17, 18]): Creates a NumPy array named pen
- Stationary = pd.DataFrame([pencil, pen, eraser], columns=['AB', 'CD', 'EF', 'GH']): Creates a DataFrame named Stationary with three rows, where each row corresponds to the NumPy arrays pencil, pen, and eraser. The columns are labeled as 'AB', 'CD', 'EF', and 'GH'.
- print(Stationary): Prints the DataFrame Stationary.

## 66. Autopct is used in pie plot to display the of that part as a label.

   A. Value
   B. Legend
   C. Percentage
   D. Data

Solution: Percentage

Autopct is a parameter in pie plots that automatically calculates and displays the percentage of each part.

67. Consider the following code:

```
import pandas as pd
import matplotlib.pyplot as plt
nutrition = ['Omega3', 'Vitamin B12', 'Calcium', 'Vitamin D3']
Nvalues = [40, 50, 60, 70]
colval = ['red', 'blue', 'green', 'yellow']
plt.pie(Nvalues, labels=nutrition, colors=colval)
plt.title("Nutritional Value")  # Statement1
plt.show()  # Statement2
```

Nutritional Value
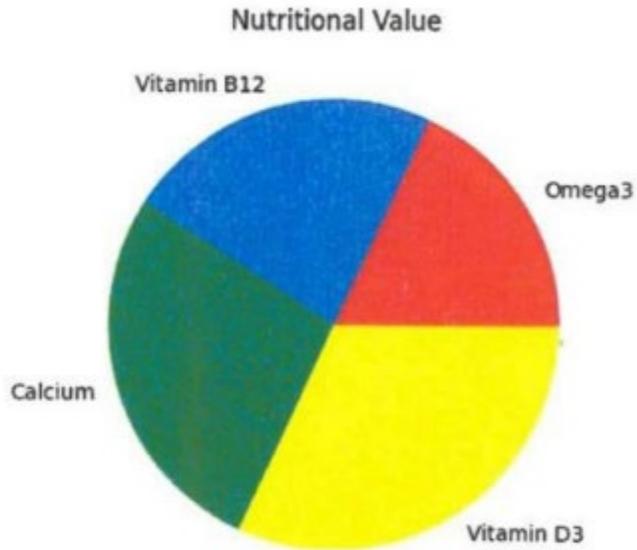
A. Choose the appropriate option to complete Statment1 and Statement2.
A. title, show( )
B. show( ), title
C. pie, display()
D. title, display()

Solution: title, show()

title function is used to set the title of the plot

show function is used to display the plot.

68. Consider following stock value data
Stockframe

	March	April	May	June	July
ITC	150	156	170	180	184
KPL	200	222	224	251	255
WPM	400	411	412	411	413

SAM	312	312	311	333	335

Find output for following:
 Stockframe.loc[['KPL', 'WPM']]

A.

	March	April	May	June	July
KPL	200	222	224	251	255
WPM	400	411	412	411	413

B.

	March	April	May	June	July
KPL	200	222	224	251	255
WPM	400	411	412	411	413
SAM	312	312	311	333	335

C.

Karch	April	
KPL	200	222
WPM	400	411

D.

	March	April	May	June	July
KPL	True	False	True	True	True
WPM	False	True	True	False	False

Solution: March April May June July

              KPL   200   222 224 251   255

              WPM   400   411 412 411   413

.loc() Specifies the label(s) of the rows/columns you want to select.

69. Bad posture, backaches, neck and shoulder pain can be prevented by arranging the work space as recommended by \qquad

A. doctor
B. therapist
C. ergonomists
D. Psychologist

Solution: ergonomists

Design for efficiency, ease, and safety in the workspace to improve human performance and well-being.

70. Which command is used for combining/merging dataframes in pandas?

A. pd.combine( )
B. pd.merge()
C. pd.join( )
D. pd.show()

Solution: pd.merge()

Merge function is used to combine two DataFrames based on common columns.

71. Identify the correct customisations on the bar chart.

A. Line style
B. Line width
C. Edge color
D. Color of the bar
E. Marker

Choose the correct answer from the options given below:

A. A, B and C only
B. D and E only
C. A, B, C, and D only
D. A, B, C, D, and E

72. Rohan wants to create the pandas series with first 5 even numbers with index as 'a', 'b',' c','d', 'e'. Choose the correct statements to do the same. Assuming that Pandas library is already imported with object alias as pd and numpy as np.

A. pd.Series(np.arange(2,12,2), index=['a','b','c','d','e'])
B. pd.Series(np.range(2,12,2), index=['a','b','c','d','e'])
C. pd.Series(np.arange((2,10,2), index=['a','b','c','d','e'])
D. pd.Series(pd.arange((2,12,2), index=['a','b','c','d','e'])

Solution: A, B, C and D only

Line style, Line width, Edge color, are associated with bar chart

Marker is associated with line plots.

Solution: pd.Series(np.arange(2, 12,2), index=['a','b', 'c' , 'd' ,'e']

np.arange(2, 12, 2) generates an array of numbers starting from 2, incrementing by 2 and stopping before 12.

73. Given a dataframe with columns name, stream and Roll_no. Prabhat wants to print the details of 'Bhavya' along with stream. Identify the correct statement.

| print(d1[['name'],['stream']] [d1['name']=='Bhavya']) |
| print(d1[['name','stream']] [d1['name']=='Bhavya']) |
| print(d1[['name']=='Bhavya']) |
| plat' |

A. print(d1[['name'],['stream']] [d1['name']='Bhavya'])
B. print(d1['name','stream']] [d1['name']='Bhavya'])
C. print(d1[['name']=='Bhavya'])
D. print(d1['name','stream']] [d1['name']='Bhavya'])

Solution: print(d1[['name', 'stream']][d1['name'] == 'Bhavya'])

d1[['name', 'stream'] columns 'name' and 'stream' from the DataFrame

[d1['name'] == 'Bhavya'] filters rows where the 'name' column equals 'Bhavya'

74. Give the output for the following query: select monthname("2003-11-10");

A. October
B. November
C. 10
D. 11

Solution: November

Monthname() function takes a date as input and returns the name of the month for that date.

75. Assume the given tables Dance and Music.
Dance
Music

SNo	Name	Class
1	Aastha	7A
2	Mahira	6A
3	Mohit	7B
4	Sanjay	7A

SNo	Name	Class
1	Mehek	8A
2	Mahira	6A
3	Lavanya	7A
4	Sanjay	7A
5	Abhay	8A

Which operation should be applied to the table to get the following output?

SNo	Name	Class
1	Aastha	7A
2	Mahira	6A
3	Mohit	7B
4	Sanjay	7A
1	Mehek	8A

3	Lavanya	7A
5	Abhay	8A

A. U
B. n
C. -
D. X

Solution: U

UNION operation is used to combine the results of two or more into a single result. It removes duplicate rows by default.

76. Given below are two statements:

Statement I: All switches are hubs.

Statement II: All hubs are switches.

In the light of the above statements, choose the most appropriate answer from the options given below

A. Both Statement I and Statement II are correct.
B. Both Statement I and Statement II are incorrect.
C. Statement I is correct but Statement II is incorrect.
D. Statement I is incorrect but Statement II is correct.

Solution: Both Statement I and Statement II are incorrect.

● Statement I: "All switches are hubs" is incorrect because switches and hubs are different types of networking devices with distinct functionalities. They are not the same thing.

Statement II: "All hubs are switches" is also incorrect for the same reason. Hubs and switches serve different purposes in networking, so they cannot be considered equivalent

77. The hacker takes advantage of congested and chaotic network environment in to sneak into system undetected.

A. Asymmetric routing.
B. Buffer overflow attacks.
C. Traffic flooding.
D. Denial of service.

Solution: Traffic flooding

Asymmetric routing: Data packets taking different paths to reach destination.

Buffer overflow attacks: Overloading a computer's memory with too much data, causing it to crash

Traffic flooding: Overloading a network with excessive data traffic, causing congestion

Preventing genuine users from accessing a service by crushing it with malicious traffic or requests.

78. 'sqlalchemy is a library that is used to interact with MySQL database by providing required credentials'

Which of the following statement(s) is/are correct?

    A.   "pip install sqlalchemy" command is used to install sqlalchemy and pandas.
    B.   create_engine( ) does not return any object.
    C.   create_engine( ) takes only database name as the parameter for connecting with pandas.
    D.   String inside create_engine( ) is known as connection string.

Choose the correct answer from the options given below:

    A.   A, B and C only.
    B.   A, B and E only.
    C.   B, C and D only.
    D.   A, C and E only.

Solution: A, B and E only.

pip install sqlalchemy is used to install sqlalchemy.

create_engine() is used to established connection between database and pandas and it is also connection string.

79.

Match List I with List II	
List I	**List II**
A. DataFrame.shape	I. To display names of columns
B. DataFrame.T	II. To display the labels
C. DataFrame.index	III. To display dimensions of data dataframe
D. DataFrame.columns	IV. To interchange columns and

Choose the correct answer from the options given below:

    A.   A-III, B-II, C-I, D-IV
    B.   A-IV, B-I, C-II, D-III
    C.   A-III, B-IV, C-II, D-I
    D.   A-II, B-I, C-III, D-IV

Solution: A-III, B-II, C-I, D-IV

- ▪ A. DataFrame.shape: This returns the dimensions of the DataFrame
- ▪ B. DataFrame.T: This returns the transpose of the DataFrame.
- ▪ C. DataFrame.index: This returns the index labels of the DataFrame.
- ▪ D. DataFrame.columns: This returns the names of columns in the DataFrame.

80. Consider the following series:

sera		serb	
a	1		10
b	2	y	20
		a	100
		b	20

Choose the correct value of sera after execution of the following statement sera.add (serb, fill_value=0)

A.

```
 a      1
b      2
x      10
v      20
```

B.

```
a      101
b      22
x      10
y      20
```

C.

```
101
22
110
120
```

D.

```
a      101
b      22
x      NaN
```

y   NaN

Solution: a   101

b   22

x   10

y   20

sera.add(serb. fill value=0), missing values are filled with 0 due to the fill_value=0 parameter

81. _____ is a service that allows us to put a website or a web page onto the internet

and make it a part of the World Wide Web.

- A.   Web server
- B.   Web hosting
- C.   Web site
- D.   Web upload

Solution: Web hosting

Web hosting is letting space on the internet to store your website so that people can access it online.

82. Identify the incorrect pair related to etiquettes in digital society.

- A.   Net etiquettes- Be Ethical, Be Respectful, Be Responsible.
- B.   Communication etiquettes- Be Precise, Be polite, Be credible
- C.   Digital etiquettes- Be Kind, Be considerate.
- D.   Social media etiquettes- Be Secure, Be Reliable.

Solution: Social media etiquettes- Be Secure, Be Reliable.

Social media etiquettes are guidelines for polite and answerable behaviour when using social media platforms, like being respectful.

83. An ___ is a person who deliberately sows discord on the internet by starting quarrels or upsetting people, by posting inflammatory or off-topic messages in an online community, just for amusement.

- A.   Internet addict
- B.   Internet troll
- C.   Netizen
- D.   Digital citizen

Solution: Internet troll

An Internet troll is someone who posts provoking or disruptive messages online

84. Writing emails or responses or posts we make on different websites or mobile Apps is a part of _____

A. Digital citizen
B. Passive Digital Footprint
C. Active Digital Footprint
D. Digital Social Circle

85. Assume df is a dataframe.

_____ is used to find the average of squared differences from the mean. _____ is calculated as the square root of the variance.

A. df.var( ), df.std( )
B. df.mean( ), df.mode( )
C. df.StandardDeviation( ), df.variance( )
D. df.std(), df.var( )

Solution: df.var( ), df.std( )

df.var() is used to calculate the variance (avg)

df.std() is used to calculate the standard deviation, (square root of the variance).

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