CUET-UG Information Practices Sample Paper-7

Duration: 1 Hour **Maximum Marks: 250**

Instructions

- This paper contains a total of 50 Multiple Choice Questions.
- Each correct answer carries **+5 marks**.
- Each incorrect answer carries **-1 mark**.
- No negative marking for unattempted questions.

Q1. What will be the output of the SQL command `SELECT ROUND(15.765, -1), TRUNCATE(15.765, 1);`?

(A) 15.8, 15.7

(B) 20, 15.7

(C) 16, 15.8

(D) 20, 15.8

Q2. A table 'Employee' has a column 'DOB'. Which function should be used to display the names of employees born in a leap year?

(A) `MOD(YEAR(DOB), 4) = 0`

(B) `DAYOFYEAR(DOB) = 366`

(C) `LAST_DAY(DOB)`

(D) `YEAR(DOB) % 4 == 0`

Q3. questionblockWhich of the following functions will return ' informatics ' (with leading/trailing spaces) if the input is ' informatics '?

(A) `INSTR()`

(B) `MID()`

(C) `TRIM()`

(D) `REPLACE()`

Q4. In MySQL, what is the result of `SELECT DAYNAME('2024-01-01');`?

(A) Monday

(B) 1

(C) January

(D) 01

Q5. The function `SUBSTR("Examination", -4, 2)` will return:

(A) ti

(B) at

(C) io

(D) nati

Q6. Which SQL function is used to find the position of the first occurrence of a substring within a string?

(A) `LOCATE()`

(B) `POSITION()`

(C) `INSTR()`

(D) All of the above

Q7. What is the output of `SELECT POWER(LENGTH("AI"), 3);`?

(A) 9

(B) 8

(C) 6

(D) 2

Q8. What will be the result of `SELECT MONTHNAME(CURDATE());` if today is May 7, 2026?

(A) 5

(B) May

(C) Thursday

(D) 05

Q9. In Relational Algebra, the σ (Sigma) operator is used for _____ while π (Pi) is used for _____.

(A) Projection, Selection

(B) Selection, Projection

(C) Union, Intersection

(D) Join, Cartesian Product

Q10. A candidate key that is not chosen as the primary key is known as a:

(A) Foreign Key

(B) Secondary Key

(C) Alternate Key

(D) Composite Key

Q11. If Table A has 5 rows and Table B has 10 rows, how many rows will be in the Cartesian Product of A and B?

(A) 15

(B) 5

(C) 50

(D) 2

Q12. Which constraint ensures that a column cannot have a NULL value even if no Primary Key is defined?

(A) UNIQUE

(B) CHECK

(C) NOT NULL

(D) DEFAULT

Q13. In which topology is there a central controller/hub, and if the hub fails, the entire network goes down?

(A) Mesh

(B) Star

(C) Bus

(D) Ring

Q14. Which layer address is hard-coded into the NIC and is 48 bits long?

(A) IP Address

(B) MAC Address

(C) Port Address

(D) SSID

Q15. Which device operates at the Data Link Layer and uses a MAC table to forward frames to specific ports?

(A) Hub

(B) Repeater

(C) Switch

(D) Gateway

Q16. To change the index of an existing DataFrame 'df' to a column named 'EmpID' without creating a new object, use:

(A) `df.set_index('EmpID', inplace=True)`

(B) `df.reindex('EmpID')`

(C) `df.index = df['EmpID']`

(D) Both (A) and (C)

Q17. What is the difference between `loc` and `iloc` in Pandas?

(A) `loc` is label-based; `iloc` is integer-position based.

(B) `loc` includes the stop boundary; `iloc` excludes it.

(C) There is no difference.

(D) Both (A) and (B).

Q18. Which attribute is used to check the dimensions of a DataFrame?

(A) `df.size`

(B) `df.shape`

(C) `df.ndim`

(D) `df.count()`

Q19. How do you rename a column 'Old' to 'New' in DataFrame 'df'?

(A) `df.rename(columns={'Old':'New'})`

(B) `df.rename({'Old':'New'})`

(C) `df.columns['Old'] = 'New'`

(D) `df.update('Old', 'New')`

Q20. What does `df.count()` return?

(A) Number of non-NA cells for each column or row.

(B) Total number of elements including NaN.

(C) The shape of the DataFrame.

(D) The first 5 rows.

Q21. Which method is used to import data from a CSV file where the delimiter is a semicolon (;)?

(A) `pd.read_csv('file.csv')`

(B) `pd.read_csv('file.csv', sep=';')`

(C) `pd.read_csv('file.csv', delimiter=':')`

(D) `pd.read_excel('file.csv')`

Q22. What is the output of a Series created as `pd.Series([10,20], index=['a', 'a'])`?

(A) Error, indexes must be unique.

(B) A Series with duplicate index 'a'.

(C) A Series where index 'a' contains a list [10, 20].

(D) It automatically renames the second 'a' to 'a_1'.

Q23. In a Series 'S', what does `S[1:3]` return if the index labels are ['A', 'B', 'C', 'D']?

(A) Elements at B and C.

(B) Elements at A, B, C.

(C) Elements at B, C, D.

(D) An empty Series.

Q24. Which method is used to delete a column 'Age' from DataFrame 'df'?

(A) `df.drop('Age', axis=1)`

(B) `del df['Age']`

(C) `df.pop('Age')`

(D) All of the above

Q25. To display the last 3 rows of a DataFrame 'df', we use:

(A) `df.tail(3)`

(B) `df.last(3)`

(C) `df[-3:]`

(D) Both (A) and (C).

Q26. Which Pandas function is used to handle missing data by filling it with a specific value?

(A) `dropna()`

(B) `fillna()`

(C) `isnull()`

(D) `replace()`

Q27. The `head()` method without arguments returns how many rows?

(A) 1

(B) 5

(C) 10

(D) All

Q28. What is the default data type of a Series if it contains `[1, 2, 3.5]`?

(A) `int64`

(B) `float64`

(C) `object`

(D) `mixed`

Q29. Which property of a DataFrame returns the transpose?

(A) `df.T`

(B) `df.transpose()`

(C) Both (A) and (B)

(D) `df.swap()`

Q30. To access the data value at the 2nd row and 3rd column using `iloc`:

(A) `df.iloc[2, 3]`

(B) `df.iloc[1, 2]`

(C) `df.iloc[2:3]`

(D) `df.iloc[1:2, 2:3]`

Q31. Which of the following is a 2D labeled data structure?

(A) Series

(B) DataFrame

(C) Panel

(D) List

Q32. What is the purpose of `df.to_csv('out.csv')`?

(A) To read a file.

(B) To write a DataFrame to a CSV file.

(C) To delete a CSV file.

(D) To display CSV content.

Q33. Which clause is used to filter results *after* an aggregate function has been applied?

(A) WHERE

(B) GROUP BY

(C) HAVING

(D) ORDER BY

Q34. To sort the data in descending order based on 'Salary', which command is correct?

(A) `ORDER BY Salary DESC`

(B) `SORT BY Salary DESC`

(C) `ORDER BY Salary ASC`

(D) `GROUP BY Salary DESC`

Q35. Which Join returns all records from the left table and matched records from the right table?

(A) Inner Join

(B) Left Join

(C) Right Join

(D) Cross Join

Q36. What is the correct sequence of clauses in a SELECT statement?

(A) SELECT, FROM, WHERE, HAVING, GROUP BY

(B) SELECT, FROM, WHERE, GROUP BY, HAVING

(C) SELECT, WHERE, FROM, GROUP BY, HAVING

(D) SELECT, FROM, GROUP BY, WHERE, HAVING

Q37. The `COUNT(*)` function in SQL counts:

(A) Only non-null values.

(B) All rows including nulls.

(C) Only unique values.

(D) Only the first column.

Q38. Which aggregate function ignores NULL values?

(A) `SUM()`

(B) `AVG()`

(C) `COUNT(column_name)`

(D) All of the above

Q39. How many rows are returned by an Inner Join if there are no matching values between the two tables?

(A) All rows from both tables.

(B) 0 rows.

(C) All rows from the first table.

(D) 1 row.

Q40. To group data by 'Department' and find the maximum salary in each, we use:

(A) `SELECT MAX(Salary) FROM Emp GROUP BY Department;`

(B) `SELECT MAX(Salary) FROM Emp WHERE Department;`

(C) `SELECT MAX(Salary) FROM Emp HAVING Department;`

(D) `SELECT Salary FROM Emp GROUP BY Department;`

Q41. Which operator is used with the WHERE clause to search for a specific pattern in a column?

(A) `MATCH`

(B) `LIKE`

(C) `EXISTS`

(D) `BETWEEN`

Q42. Which function is used to add a label to the X-axis in Matplotlib?

(A) `plt.xname()`

(B) `plt.xlabel()`

(C) `plt.labelx()`

(D) `plt.axis(x)`

Q43. To create a histogram, we use the function:

(A) `plt.bar()`

(B) `plt.hist()`

(C) `plt.plot()`

(D) `plt.scatter()`

Q44. What does `plt.legend()` do?

(A) It sets the title of the chart.

(B) It displays a box identifying the data series (lines/bars).

(C) It creates a grid.

(D) It saves the plot.

Q45. Which argument in `plt.bar()` is used to set the color of the bars?

(A) `c`

(B) `color`

(C) `fill`

(D) `bcolor`

Q46. To display a pie chart with slices "exploded" or separated, we use the parameter:

(A) `separate`

(B) `explode`

(C) `split`

(D) `gap`

Q47. Which of the following refers to the trail of data you leave behind on the internet?

(A) Digital Shadow

(B) Digital Footprint

(C) Cyber Trail

(D) Data Cookie

Q48. E-waste contains hazardous materials like:

(A) Lead and Mercury

(B) Carbon and Oxygen

(C) Gold and Silver only

(D) Plastic only

Q49. A person who uses someone else's work without permission or credit is committing:

(A) Phishing

(B) Plagiarism

(C) Hacking

(D) Spamming

Q50. A software developer creates a new encryption algorithm. They publish the documentation online but find that a competitor has copied the logic and rebranded it as their own. Simultaneously, the developer notices their server logs contain unauthorized 'SQL Injection' attempts. Which set of concepts correctly categorizes these two incidents?

(A) The first is a violation of E-waste protocols; the second is an example of an Active Digital Footprint.

(B) The first is an infringement of Intellectual Property Rights (Plagiarism/Patent); the second is a Cybercrime.

(C) The first is a violation of Fair Use; the second is a byproduct of a Passive Digital Footprint.

(D) The first is an example of Open Source licensing; the second is a standard Network Topology error.

Detailed Solutions

Q1.

Solution

Concept: In SQL, numeric functions are used to manipulate decimal values. The `ROUND()` function rounds a number to a specified number of decimal places or to a specified place value. When a negative precision is used, it rounds digits to the left of the decimal point. The `TRUNCATE()` function removes digits after a specified decimal position without rounding the value. These functions are commonly used in financial and statistical calculations.

Visual Representation:

```
Number: 15.765

ROUND(15.765, -1)
→ rounds to nearest 10
→ 20

TRUNCATE(15.765, 1)
→ keeps 1 decimal place
→ 15.7
```

Solution: The query contains two functions. First, `ROUND(15.765, -1)` means rounding to the nearest multiple of 10. Since 15.765 is closer to 20 than 10, it becomes 20. Second, `TRUNCATE(15.765, 1)` cuts off digits after one decimal place without rounding, resulting in 15.7. Therefore, the output of the query is 20 and 15.7.

Final Answer: 20, 15.7

Answer: (B)

Q2.

Solution

Concept: In SQL, date functions are used to extract and manipulate parts of date values. To identify leap years, the year portion of a date is extracted using `YEAR()` and then checked for divisibility by 4 using the modulus operator. A leap year typically occurs every 4 years, so this condition is commonly used in database filtering. Understanding date extraction and arithmetic operations is important for solving such queries.

Visual Representation:

```
DOB → YEAR(DOB) → Check divisibility

Example:
2000 → 2000 % 4 = 0 → Leap Year
2001 → 2001 % 4  0 → Not Leap Year
```

Solution: The question asks how to display employees born in a leap year. The correct logic is to extract the year from DOB using `YEAR(DOB)` and check whether it is divisible by 4 using the modulus function. Option (A) `MOD(YEAR(DOB), 4) = 0` correctly applies this logic in standard SQL form. Option (D) uses ==, which is not valid SQL syntax. Option (B) is incorrect because DAYOFYEAR() returns the day number within a year, not leap-year validation. Option (C) is unrelated to leap year calculation. Therefore, the correct answer is option (A).

Final Answer: MOD(YEAR(DOB), 4) = 0

Answer: (A)

Q3.

Solution

Concept: String functions in SQL manipulate and extract data from text. `TRIM()` removes leading and trailing spaces, `INSTR()` finds substring positions, `MID()` extracts parts of a string, and `REPLACE()` substitutes characters. Choosing the right function depends on whether you want to remove spaces, locate text, or alter string content.

Solution: The question asks which function retains the leading and trailing spaces in a string. `TRIM()` actually removes spaces, so it is not suitable. `INSTR()` only returns the position of a substring, `REPLACE()` substitutes content, and `MID()` (or `SUBSTRING()`) extracts a portion of the string without modifying spaces. Therefore, if the input is ' informatics ', using `MID()` with the full length will return ' informatics ' including the spaces, making it the correct choice.

Final Answer: MID()

Answer: (B)

Q4.

Solution

Concept: In MySQL, the `DAYNAME()` function is used to extract the name of the day (like Monday, Tuesday, etc.) from a given date. This function returns a string representing the weekday of the date provided. It is helpful for reports, scheduling, and understanding the day-of-week patterns in date-based data.

Visual Representation:

```
Date: '2024-01-01'
DAYNAME('2024-01-01') → 'Monday'
```

Solution: The query asks for the day name of the date '2024-01-01'. Using MySQL's `DAYNAME()` function, it returns the full name of the weekday corresponding to the given date. January 1, 2024, falls on a Monday. Options (B), (C), and (D) return numbers, month names, or day numbers, which are unrelated to the `DAYNAME()` function. Therefore, the correct output is 'Monday'.

Final Answer: Monday

Answer: (A)

Q5.

Solution

Concept: In SQL, the `SUBSTR()` function is used to extract a substring from a given string. It takes three arguments: the string, the starting position, and the length of the substring. If the starting position is negative, counting begins from the end of the string. This feature is commonly used to extract characters from the right side of a string.

Visual Representation:

```
String: E x a m i n a t i o n
Index : 1 2 3 4 5 6 7 8 9 10 11

From end (-4):
Characters: a t i o n
Positions : 8 9 10 11

SUBSTR("Examination", -4, 2)
→ start at 't' (position 9)
→ take 2 characters → "ti"
```

Solution: The string is "Examination". The starting position -4 means counting 4 characters from the end, which lands at the character 't'. From there, we extract 2 characters. The sequence starting from that position is "t" followed by "i", giving "ti". Therefore, the output of the function is "ti".

Final Answer: ti

Answer: (A)

Q6.

Solution

Concept: In SQL, string functions are used to perform operations on text data. Finding the position of a substring within a string is a common requirement in data processing. SQL provides multiple functions for this purpose, such as `LOCATE()`, `POSITION()`, and `INSTR()`, which return the index of the first occurrence of a substring in a given string.

Visual Representation:

```
String: "INFORMATICS"
Substring: "MA"

Position: starts at index 5 (depending on DBMS indexing)
```

Solution: The question asks which SQL function is used to find the position of the first occurrence of a substring within a string. In SQL, different databases support different but equivalent functions: `LOCATE()`, `POSITION()`, and `INSTR()` all perform this task. `LOCATE()` is commonly used in MySQL, `POSITION()` in standard SQL, and `INSTR()` in Oracle/MySQL. Since all three functions serve the same purpose of finding substring position, the correct answer is All of the above.

Final Answer: All of the above

Answer: (D)

Q7.

Solution

Concept: In SQL, `LENGTH()` returns the number of characters in a string, and `POWER(x, y)` raises a number `x` to the power of `y`. These functions are often combined to perform calculations based on string length, useful in data analysis, validation, and reporting scenarios.

Visual Representation:

```
String: "AI"
LENGTH("AI") → 2
POWER(2, 3) → 2 * 2 * 2 = 8
```

Solution: The query `SELECT POWER(LENGTH("AI"), 3);` first calculates `LENGTH("AI")`, which counts the characters in "AI". There are 2 characters. Next, `POWER(2, 3)` computes 2 raised to the power of 3, which is 2 * 2 * 2 = 8. Therefore, the result of the SQL command is 8.

Final Answer: 8

Answer: (B)

Q8.

Solution

Concept: In SQL, the `CURDATE()` function returns the current system date, while `MONTHNAME()` extracts the full name of the month from a given date. This function is useful for formatting and displaying date-related information in a more readable form, especially in reports and user interfaces.

Visual Representation:

```
CURDATE() → 2026-05-07
MONTHNAME(2026-05-07) → May
```

Solution: The query `SELECT MONTHNAME(CURDATE());` first retrieves the current date, which is given as May 7, 2026. Then the `MONTHNAME()` function extracts the name of the month from this date. Since the month is May, the function returns "May". The other options represent numeric formats or weekday names, which are not produced by `MONTHNAME()`.

Final Answer: May

Answer: (B)

Q9.

Solution

Concept: Relational Algebra is a formal language for database queries. The σ (sigma) operator is used for selection, which filters rows based on conditions. The π (pi) operator is used for projection, which selects specific columns from a table. Understanding these operators helps in writing queries and reasoning about relational data.

Solution: The σ operator selects tuples that satisfy a given predicate, filtering rows based on conditions such as age > 30 or department = 'Sales'. The π operator projects a table onto specific attributes, effectively selecting columns while ignoring others. For example, $\pi_{name,salary}$(Employee) returns only the name and salary columns. Therefore, in relational algebra, σ corresponds to selection (row filtering) and π corresponds to projection (column selection).

Final Answer: Selection, Projection

Answer: (B)

Q10.

Solution

Concept: A candidate key is a minimal set of attributes that can uniquely identify a record in a table. Among all candidate keys, one is chosen as the primary key. The remaining candidate keys, which are not selected as primary, are called alternate keys. These keys help enforce uniqueness in the database.

Solution: When a table has multiple candidate keys, the database designer selects one to serve as the primary key, which uniquely identifies each record. Any other candidate key that is not chosen as the primary key is termed an alternate key. Alternate keys still maintain uniqueness constraints and can be used for indexing or referencing, but they are not the main key used for primary identification. Foreign keys, secondary keys, and composite keys serve different purposes, making "Alternate Key" the correct answer for this context.

Final Answer: Alternate Key

Answer: (C)

Q11.

Solution

Concept: In SQL, the Cartesian Product (or Cross Join) combines every row of one table with every row of another table. If Table A has `m` rows and Table B has `n` rows, the total number of rows in the Cartesian Product is `m × n`. This operation is fundamental in relational algebra and forms the basis for more complex joins.

Visual Representation:

```
Table A: 5 rows
Table B: 10 rows
Cartesian Product → 5 × 10 = 50 rows
```

Solution: Table A has 5 rows and Table B has 10 rows. A Cartesian Product combines each row of Table A with every row of Table B. Therefore, the total number of rows = 5 × 10 = 50. Options (A), (B), and (D) do not represent the correct multiplication logic of a Cartesian Product. Thus, the correct answer is 50.

Final Answer: 50

Answer: (C)

Q12.

Solution

Concept: In SQL, constraints enforce rules on table columns to maintain data integrity. The `NOT NULL` constraint ensures that a column cannot have NULL values, even if the column is not part of a primary key. Other constraints like `UNIQUE`, `CHECK`, and `DEFAULT` serve different purposes, such as enforcing uniqueness, validating conditions, or providing default values when none are supplied.

Solution: When designing a table, you may want to prevent certain columns from containing NULL values even if they are not part of a primary key. The `NOT NULL` constraint achieves this by enforcing that every row must have a valid value for the column. `UNIQUE` only ensures that no two rows have the same value but allows NULLs. `CHECK` validates a condition, and `DEFAULT` provides a default value if none is specified. Therefore, the correct constraint to prevent NULLs without defining a primary key is `NOT NULL`.

Final Answer: NOT NULL

Answer: (C)

Q13.

Solution

Concept: Network topology defines how devices are connected in a network. In a star topology, all devices connect to a central hub or controller. The hub manages data transmission between devices. While this design simplifies management and troubleshooting, the central hub becomes a single point of failure, meaning that if the hub fails, the entire network stops functioning.

Solution: In a star topology, every workstation or node connects directly to a central hub or switch. The hub acts as a mediator for data transfer between devices, allowing easy isolation of issues and simplified network management. However, the dependency on a single central hub introduces vulnerability. If the hub fails, no communication can occur between any of the connected devices, resulting in complete network downtime. Other topologies, like mesh or bus, do not have this central point of failure. Thus, the correct answer is "Star".

Final Answer: Star

Answer: (B)

Q14.

Solution

Concept: In networking, the MAC (Media Access Control) address is a unique identifier assigned to a network interface card (NIC) by the manufacturer. It operates at the Data Link Layer (Layer 2) of the OSI model and is 48 bits long, usually represented in hexadecimal format. MAC addresses are essential for local network communication and hardware-level identification.

Visual Representation:

```
Example MAC Address: 00:1A:2B:3C:4D:5E
Length: 48 bits (6 bytes)
```

Solution: The question asks which layer address is hard-coded into the NIC and is 48 bits in length. The IP address is logical and can change with network configuration. Port addresses identify processes, not devices. SSID identifies wireless networks, not hardware. The MAC address, however, is unique to the NIC, hard-coded by the manufacturer, and is exactly 48 bits long. Hence, the correct answer is MAC Address.

Final Answer: MAC Address

Answer: (B)

Q15.

Solution

Concept: Network devices operate at different OSI layers. Switches operate at the Data Link Layer (Layer 2) and use MAC addresses to forward frames to specific ports. Unlike hubs or repeaters that broadcast to all ports, switches maintain a MAC address table to ensure efficient delivery. Gateways operate at higher layers, bridging different protocols.

Solution: A switch examines the destination MAC address of incoming frames and consults its MAC table to determine which port corresponds to the address. By sending frames only to the intended port, it reduces network congestion and improves efficiency. Hubs and repeaters simply broadcast frames to all ports, while gateways handle protocol conversion at higher layers. Thus, the device that operates at the Data Link Layer and uses a MAC table for forwarding is a Switch.

Final Answer: Switch

Answer: (C)

Q16.

Solution

Concept: In Pandas, the index of a DataFrame uniquely identifies each row. The `set_index()` method allows changing the index to one of the existing columns. By using the `inplace=True` parameter, the original DataFrame is modified directly without creating a new object. Alternatively, assigning a column to `df.index` also updates the index in-place.

Visual Representation:

```
Original DataFrame:
   EmpID  Name
0    101  Alice
1    102  Bob

After df.set_index('EmpID', inplace=True):

EmpID   Name
101    Alice
102      Bob

Or using df.index = df['EmpID']:

EmpID    EmpID   Name
101      101  Alice
102      102    Bob
```

Solution: To change the index to 'EmpID' without creating a new DataFrame, we can either use `df.set_index('EmpID', inplace=True)` which directly modifies the original DataFrame, or assign the column directly via `df.index = df['EmpID']`. Both approaches update the index in-place. Methods like `reindex()` are used for aligning to a new set of labels, not for converting a column to the index.

Final Answer: Both (A) and (C)

Answer: (D)

Q17.

Solution

Concept: In Pandas, data selection can be performed using `loc` and `iloc`. The `loc` method is label-based, meaning it selects rows and columns using their explicit labels. In contrast, `iloc` is integer-position based, selecting rows and columns using their numerical indices. Additionally, slicing with `loc` includes the stop boundary, whereas slicing with `iloc` excludes it.

Visual Representation:

```
DataFrame:
       A   B
row1   10  20
row2   30  40

df.loc['row1':'row2'] → includes row2
df.iloc[0:2]          → excludes index 2 (only 0 and 1)
```

Solution: The question asks for the difference between `loc` and `iloc`. `loc` selects by row/column labels and includes the stop label when slicing, while `iloc` selects by integer index and excludes the stop index when slicing. Hence, both the label/integer distinction and the slicing behavior are important differences. Option (A) explains the label vs. integer behavior, and option (B) explains the slicing difference. Therefore, the correct answer is both (A) and (B).

Final Answer: Both (A) and (B)

Answer: (D)

Q18.

Solution

Concept: In data analysis using Python's Pandas library, a DataFrame is a two-dimensional labeled data structure. To understand its structure, attributes are used to inspect its size, shape, and dimensions. Different properties provide different types of metadata: some return total elements, some return dimensional layout, and others provide row/column counts. Among these, the shape attribute is most commonly used to understand the structure of a DataFrame.

Visual Representation:

```
DataFrame Shape:
(rows, columns)

Example:
df.shape → (5, 3)
means 5 rows and 3 columns
```

Solution: To check the dimensions of a DataFrame, we use `df.shape`. This attribute returns a tuple representing (number of rows, number of columns), which directly describes the structure of the DataFrame. The attribute `df.size` returns the total number of elements, `df.ndim` returns the number of dimensions (always 2 for DataFrame), and `df.count()` returns non-null values per column or row. Therefore, the correct attribute for checking dimensions is `df.shape`.

Final Answer: df.shape

Answer: (B)

Q19.

Solution

Concept: In Pandas, column manipulation is an important part of data preprocessing. Renaming columns allows better readability and consistency in datasets. The `rename()` function is used to modify column names by passing a dictionary where the key represents the old column name and the value represents the new column name. This method does not modify the original DataFrame unless specified with `inplace=True`.

Visual Representation:

```
Before:
Old → Data Column

After rename:
New → Data Column
```

Solution: To rename a column 'Old' to 'New' in DataFrame `df`, we use the syntax `df.rename(columns={'Old':'New'})`. This correctly maps the old column name to the new one using the columns parameter. Other options are incorrect because Pandas does not allow direct dictionary replacement of columns or update-based renaming. Therefore, the correct method is option (A).

Final Answer: df.rename(columns={'Old':'New'})

Answer: (A)

Q20.

Solution

Concept: Pandas provides various methods to summarize and analyze data. The `count()` function is used to count non-missing (non-NA) values in each column or row of a DataFrame. It helps in identifying missing data and understanding data completeness. Unlike total size, it ignores NaN values and focuses only on valid entries.

Visual Representation:

```
Column A: [10, 20, NaN, 30]
df.count() → 3 (non-NA values)
```

Solution: The function `df.count()` returns the number of non-NA (non-null) values for each column or row depending on the axis specified. It does not include NaN values in its count. It is different from total element count, which includes missing values. It also does not return the shape or first rows of the DataFrame. Therefore, the correct answer is that it returns the number of non-NA cells for each column or row.

Final Answer: Number of non-NA cells for each column or row

Answer: (A)

Q21.

Solution

Concept: In Pandas, the `read_csv()` function is used to import data from CSV files into a DataFrame. CSV files may use different delimiters such as commas, semicolons, or tabs to separate values. The `sep` or `delimiter` parameter allows specifying the exact character used in the file. This is important for correctly parsing data when the default comma separator is not used.

Solution: The question asks how to import a CSV file where values are separated by a semicolon (;). By default, `pd.read_csv()` assumes a comma as the delimiter. To handle semicolon-separated files, we explicitly set `sep=';'` in the function. Option (A) does not specify the delimiter, option (C) uses an incorrect delimiter ':', and option (D) is for Excel files, not CSV parsing. Therefore, the correct method is `pd.read_csv('file.csv', sep=';')`.

Final Answer: pd.read_csv('file.csv', sep=';')

Answer: (B)

Q22.

Solution

Concept: In Pandas, a Series is a one-dimensional labeled array that can hold any data type. Unlike some data structures, a Pandas Series allows duplicate labels in its index. This flexibility enables operations like grouping or aggregating on non-unique indexes but can lead to ambiguous selections if not handled carefully. Understanding how Pandas treats duplicate indexes is essential for correct data manipulation.

Visual Representation:

```
import pandas as pd

s = pd.Series([10, 20], index=['a', 'a'])
print(s)

Output:
a    10
a    20
dtype: int64
```

Solution: The question asks about the output of a Series created with duplicate indexes. Pandas does not throw an error if the index labels are not unique, nor does it automatically rename them. Instead, it creates a Series with duplicate index labels, where both entries are accessible via the same label. Therefore, the correct answer is that the Series contains a duplicate index 'a', holding values 10 and 20.

Final Answer: A Series with duplicate index 'a'

Answer: (B)

Q23.

Solution

Concept: In Pandas, Series indexing can be either label-based or position-based depending on context. When slicing using `S[1:3]`, Python uses positional indexing similar to lists. The slice includes the start index but excludes the end index. Therefore, it selects elements at positions 1 and 2. Understanding slicing rules is important for accurate data extraction.

Visual Representation:

```
Index:   A   B   C   D
Pos:     0   1   2   3

S[1:3] → positions 1 to 2 → B, C
```

Solution: Given the index labels ['A', 'B', 'C', 'D'], the positional mapping is A(0), B(1), C(2), D(3). The slice `S[1:3]` selects elements starting from position 1 up to (but not including) position 3. Therefore, it returns elements at positions 1 and 2, which correspond to B and C. Hence, the correct output is elements at B and C.

Final Answer: Elements at B and C

Answer: (A)

Q24.

Solution

Concept: In Pandas, DataFrame columns can be removed using multiple methods depending on the requirement. Data cleaning often involves deleting unnecessary columns to simplify analysis. Methods like `drop()`, `del`, and `pop()` are commonly used. Each method has slightly different behavior: some return a modified copy while others modify the DataFrame in place or return the removed column.

Solution: The question asks how to delete a column 'Age' from DataFrame `df`. The method `df.drop('Age', axis=1)` removes the column by specifying axis=1 for columns. The statement `del df['Age']` directly deletes the column from the DataFrame. The method `df.pop('Age')` removes the column and returns it as a Series. Since all three methods correctly delete the column, the correct answer is that all of the above are valid.

Final Answer: All of the above

Answer: (D)

Q25.

Solution

Concept: Pandas provides multiple methods to inspect data in a DataFrame. The `head()` function displays the first few rows, while the `tail()` function displays the last few rows. Slicing with negative indices can also be used to access rows from the end. Understanding these methods helps in quickly exploring datasets during analysis.

Solution: The question asks how to display the last 3 rows of a DataFrame `df`. The function `df.tail(3)` directly returns the last 3 rows. Alternatively, slicing `df[-3:]` also returns the same result using Python indexing. The methods `df.last(3)` are not valid Pandas functions. Therefore, both `df.tail(3)` and `df[-3:]` are correct.

Final Answer: Both (A) and (C)

Answer: (D)

Q26.

Solution

Concept: Missing data is a common issue in data analysis and must be handled carefully to ensure accurate results. Pandas provides several functions to manage missing values. Some functions detect missing data, while others remove or replace it. Filling missing values with a specific value is a common preprocessing technique used to maintain dataset consistency.

Solution: The question asks which function is used to handle missing data by filling it with a specific value. The function `fillna()` is used to replace missing (NaN) values with a specified value such as mean, median, or a constant. The function `dropna()` removes missing values, `isnull()` identifies missing values, and `replace()` is used for general value replacement but not specifically for NaN filling. Therefore, the correct answer is `fillna()`.

Final Answer: fillna()

Answer: (B)

Q27.

Solution

Concept: In Pandas, the `head()` method is used to display the first few rows of a DataFrame or Series. It is mainly used for quick inspection of data. By default, if no argument is provided, it returns the first 5 rows. This default behavior helps users quickly understand the structure and content of the dataset without printing the entire data.

Visual Representation:

```
df.head()

returns:
Row 0
Row 1
Row 2
Row 3
Row 4
```

Solution: The question asks how many rows are returned by `head()` when no argument is given. By default, Pandas sets the parameter to 5, so it returns the first 5 rows of the DataFrame. Therefore, the correct answer is 5.

Final Answer: 5

Answer: (B)

Q28.

Solution

Concept: In Pandas, a Series automatically assigns a common data type (dtype) to all its elements based on type promotion rules. When a Series contains both integers and floating-point numbers, Pandas upcasts all values to a compatible type that can preserve decimal precision. This ensures consistency in arithmetic operations and avoids data loss due to type conversion.

Visual Representation:

```
Input: [1, 2, 3.5]

Step 1: Integer + Float detected
Step 2: Type promotion occurs
Result dtype → float64
```

Solution: The Series contains both integers (1, 2) and a float value (3.5). In Pandas, when mixed numeric types are present, the entire Series is converted to `float64` to accommodate decimal values without losing precision. It does not remain `int64`, and `object` is used only for non-numeric mixed data. Therefore, the correct default data type is `float64`.

Final Answer: float64

Answer: (B)

Q29.

Solution

Concept: In Pandas, a DataFrame is a two-dimensional labeled data structure with rows and columns. The transpose operation swaps rows with columns, effectively flipping the DataFrame. This is useful for reshaping data and changing its orientation for analysis. Pandas provides both attribute-based and function-based ways to perform this operation.

Solution: The transpose of a DataFrame can be obtained using either `df.T` or `df.transpose()`. Both methods perform the same operation of swapping rows and columns. `df.T` is a shorthand attribute, while `df.transpose()` is the function form. Since both are valid and produce the same result, the correct answer is that both (A) and (B) are correct.

Final Answer: Both (A) and (B)

Answer: (C)

Q30.

Solution

Concept: In Pandas, `iloc` is used for integer-location based indexing. It accesses rows and columns using zero-based indexing, meaning counting starts from 0. Therefore, the first row/column is index 0, the second is index 1, and so on. To access a specific single value, both row and column positions must be given in the form `df.iloc[row_index, column_index]`.

Visual Representation:

```
Row index:    0      1      2
Column index:  0      1      2

We need:
2nd row → index 1
3rd column → index 2

So: df.iloc[1, 2]
```

Solution: The question asks for the value at the 2nd row and 3rd column using `iloc`. Since indexing starts from 0, the 2nd row corresponds to index 1 and the 3rd column corresponds to index 2. Therefore, the correct syntax is `df.iloc[1, 2]`. Other options either use incorrect indexing or return slices instead of a single value. Hence, the correct answer is option (B).

Final Answer: df.iloc[1, 2]

Answer: (B)

Q31.

Solution

Concept: Pandas provides different data structures for handling data efficiently. A Series is one-dimensional, while a DataFrame is two-dimensional and consists of rows and columns. It is the most commonly used structure for tabular data analysis. Panel was previously used for 3D data but is now deprecated in modern Pandas versions.

Solution: The question asks which option represents a 2D labeled data structure. A DataFrame is a two-dimensional structure with labeled rows and columns, making it suitable for tabular data. A Series is one-dimensional, a Panel is deprecated, and a list is a basic Python structure without labeling. Therefore, the correct answer is DataFrame.

Final Answer: DataFrame

Answer: (B)

Q32.

Solution

Concept: Pandas provides functions to read, write, and manipulate data in different file formats. One common operation is exporting a DataFrame to a CSV file for storage or sharing. The `to_csv()` function is used for this purpose. It converts the DataFrame into a CSV format and saves it to the specified file path.

Solution: The question asks the purpose of `df.to_csv('out.csv')`. This function writes the DataFrame into a CSV file named 'out.csv'. It is used for exporting data, not reading or deleting files. It also does not display content. Therefore, the correct answer is that it writes a DataFrame to a CSV file.

Final Answer: To write a DataFrame to a CSV file

Answer: (B)

Q33.

Solution

Concept: In SQL, different clauses are used at different stages of query execution. The `WHERE` clause filters rows before grouping, while aggregate functions like SUM, COUNT, and AVG work on grouped data. After aggregation, filtering on grouped results is performed using the `HAVING` clause. This makes `HAVING` essential for applying conditions on aggregated values.

Visual Representation:

```
Step 1: WHERE → filters rows
Step 2: GROUP BY → forms groups
Step 3: HAVING → filters groups
Step 4: ORDER BY → sorts result
```

Solution: The question asks which clause is used to filter results after an aggregate function has been applied. The `WHERE` clause cannot be used with aggregate results because it works on individual rows before grouping. `GROUP BY` is used to form groups, and `ORDER BY` is used for sorting results. The correct clause for filtering aggregated results is `HAVING`. Therefore, the correct answer is HAVING.

Final Answer: HAVING

Answer: (C)

Q34.

Solution

Concept: SQL provides the `ORDER BY` clause to sort query results based on one or more columns. Sorting can be done in ascending (ASC) or descending (DESC) order. This clause is essential for organizing data in reports and queries. Other clauses like `GROUP BY` are used for aggregation, not sorting, and `SORT BY` is not a valid SQL command.

Solution: The question asks for the correct command to sort data in descending order based on Salary. The correct SQL syntax uses `ORDER BY` followed by the column name and `DESC` keyword. Therefore, `ORDER BY Salary DESC` is correct. The option `SORT BY` is invalid in standard SQL, and `ASC` sorts in ascending order. Hence, the correct answer is `ORDER BY Salary DESC`.

Final Answer: ORDER BY Salary DESC

Answer: (A)

Q35.

Solution

Concept: SQL joins are used to combine rows from two or more tables based on related columns. Different types of joins determine how matching and non-matching rows are handled. A Left Join returns all records from the left table and matching records from the right table. If there is no match, NULL values are returned for the right table columns.

Solution: The question asks which join returns all records from the left table and matched records from the right table. An Inner Join returns only matching records, a Right Join returns all records from the right table, and a Cross Join returns all possible combinations. The correct join that satisfies the condition is Left Join. Therefore, the correct answer is Left Join.

Final Answer: Left Join

Answer: (B)

Q36.

Solution

Concept: SQL queries follow a specific logical order of execution, even though they are written in a different sequence. Understanding the correct order of clauses is important for writing valid and efficient queries. The general execution order is FROM, WHERE, GROUP BY, HAVING, and then SELECT processing occurs. This ensures proper filtering and grouping before final output.

Solution: The correct sequence of SQL clauses in a SELECT statement is: FROM is processed first to identify tables, followed by WHERE for row filtering, then GROUP BY for aggregation, and HAVING for filtering grouped data. Finally, SELECT determines the output columns. Therefore, the correct logical order among the options is SELECT, FROM, WHERE, GROUP BY, HAVING.

Final Answer: SELECT, FROM, WHERE, GROUP BY, HAVING

Answer: (B)

Q37.

Solution

Concept: In SQL, aggregate functions are used to perform calculations on multiple rows of data and return a single summarized value. The function `COUNT(*)` is used to count all rows in a table, regardless of whether any column contains NULL values. This makes it different from `COUNT(column_name)`, which ignores NULL values in the specified column. Understanding this distinction is important for accurate data analysis and reporting in relational databases.

Solution: The question asks what `COUNT(*)` function counts. The asterisk (*) indicates that all rows in the table are considered, including those containing NULL values in any column. Unlike `COUNT(column_name)`, which ignores NULLs in that column, `COUNT(*)` does not exclude any row. Therefore, it returns the total number of rows present in the table. Hence, the correct answer is that it counts all rows including NULLs.

Final Answer: All rows including nulls

Answer: (B)

Q38.

Solution

Concept: In SQL, aggregate functions are used to perform calculations on multiple rows of data. NULL values represent missing or unknown data and are generally ignored by most aggregate functions during computation. This ensures that calculations like sum, average, and count remain accurate by considering only valid (non-NULL) values.

Visual Representation:

```
Data: 10, 20, NULL, 30

SUM()   → 10 + 20 + 30 = 60
AVG()   → (10 + 20 + 30) / 3 = 20
COUNT(column) → counts only non-NULL values = 3
```

Solution: The question asks which aggregate function ignores NULL values. The functions `SUM()` and `AVG()` automatically ignore NULL values during calculations. Similarly, `COUNT(column_name)` also ignores NULL values and counts only non-NULL entries in the specified column. Since all given functions behave this way, the correct answer is that all of the above ignore NULL values.

Final Answer: All of the above

Answer: (D)

Q39.

Solution

Concept: SQL Inner Join is used to combine rows from two tables based on a matching condition. It returns only those rows where there is a match in both tables. If no matching values exist between the tables, then no rows satisfy the join condition. Understanding join behavior is important for managing relational data and combining datasets effectively.

Solution: The question asks how many rows are returned by an Inner Join when there are no matching values between two tables. Since Inner Join only returns rows with matching keys in both tables, the absence of matching values results in no output rows. Therefore, the result of the query is 0 rows.

Final Answer: 0 rows

Answer: (B)

Q40.

Solution

Concept: In SQL, grouping data using the `GROUP BY` clause allows aggregate functions like `MAX()`, `SUM()`, and `AVG()` to be applied to each group separately. This is commonly used for summarizing data based on categories such as departments, regions, or product types. Correct placement of aggregate functions and grouping clauses is essential for obtaining meaningful grouped results.

Solution: The question asks how to group data by Department and find the maximum salary in each group. The correct approach is to use `GROUP BY Department` along with the aggregate function `MAX(Salary)`. Option (A) correctly applies both MAX and GROUP BY. Option (B) is invalid because WHERE cannot filter grouped results without a condition. Option (C) misuses HAVING without proper grouping. Option (D) does not apply aggregation correctly. Therefore, the correct query is `SELECT MAX(Salary) FROM Emp GROUP BY Department;`.

Final Answer: SELECT MAX(Salary) FROM Emp GROUP BY Department

Answer: (A)

Q41.

Solution

Concept: In SQL, the `WHERE` clause is used to filter records based on specific conditions. When we need to search for patterns within string data (such as starting letters, ending letters, or partial matches), SQL provides a special operator for pattern matching. This operator works along with wildcard characters like % and _ to define flexible search conditions.

Visual Representation:

```
Example:
Name LIKE 'A%'  → names starting with A
Name LIKE '%an' → names ending with "an"
```

Solution: The question asks which operator is used with the `WHERE` clause to search for a specific pattern in a column. The `LIKE` operator is specifically designed for pattern matching in SQL. `MATCH` is not used for basic pattern filtering in WHERE, `EXISTS` is used for subqueries, and `BETWEEN` is used for range conditions. Therefore, the correct answer is `LIKE`.

Final Answer: LIKE

Answer: (B)

Q42.

Solution

Concept: In Matplotlib, axis labels are used to describe what each axis in a graph represents. The `pyplot` module provides specific functions to set labels for the X-axis and Y-axis. These labels improve the readability of graphs by clearly indicating the meaning of the plotted data along each axis.

Visual Representation:

```
X-axis → plt.xlabel("Time")
Y-axis → plt.ylabel("Marks")
```

Solution: The question asks which function is used to add a label to the X-axis in Matplotlib. The correct function is `plt.xlabel()`, which sets the label for the horizontal (X) axis. The other options such as `plt.xname()`, `plt.labelx()`, and `plt.axis(x)` are not valid Matplotlib functions for labeling axes. Therefore, the correct answer is `plt.xlabel()`.

Final Answer: plt.xlabel()

Answer: (B)

Q43.

Solution

Concept: In data visualization using Matplotlib, different plotting functions are designed for different types of data representation. A histogram is specifically used to represent the frequency distribution of continuous numerical data by dividing it into intervals called bins. It helps in understanding how data is distributed, such as whether it is symmetric, skewed, or clustered. Matplotlib provides a dedicated function for creating histograms.

Visual Representation:

```
Data: 10, 12, 15, 18, 20, 22, 25

Bins: [10-15], [15-20], [20-25]

Histogram shows frequency of values in each bin
```

Solution: The question asks which function is used to create a histogram. The correct function is `plt.hist()`, which is specifically designed to plot frequency distributions of numerical data. The function `plt.bar()` is used for bar charts representing categorical data, `plt.plot()` is used for line graphs, and `plt.scatter()` is used for scatter plots to show relationships between two variables. Since histogram visualization requires grouping data into bins and showing frequency, `plt.hist()` is the correct choice.

Final Answer: plt.hist()

Answer: (B)

Q44.

Solution

Concept: In Matplotlib, legends are used to provide descriptions for different plotted elements such as lines, bars, or markers. When multiple datasets are displayed in a single graph, a legend helps identify which data corresponds to which label. This improves readability and interpretation of visual data representations.

Solution: The question asks what `plt.legend()` does. This function displays a legend box on the plot that identifies different data series using labels provided in the plotting functions. It does not set the title, create grids, or save plots. Therefore, the correct answer is that it displays a box identifying the data series.

Final Answer: Displays a box identifying the data series

Answer: (B)

Q45.

Solution

Concept: In Matplotlib, the `plt.bar()` function is used to create bar charts for visualizing categorical data. It provides several parameters to customize the appearance of bars, such as width, alignment, and color. Among these, the color parameter is specifically used to define the fill color of the bars, making the visualization more meaningful and visually distinct.

Visual Representation:

```
plt.bar(x, height, color='blue')
           ↑
        bar color
```

Solution: The question asks which argument in `plt.bar()` is used to set the color of the bars. The correct parameter is `color`, which allows specifying the bar color using names, hex codes, or RGB values. The option `c` is not used in `bar()` (it is used in scatter plots), while `fill` and `bcolor` are not valid Matplotlib parameters. Therefore, the correct answer is `color`.

Final Answer: color

Answer: (B)

Q46.

Solution

Concept: In Matplotlib, a pie chart is used to represent proportions of a whole dataset. Sometimes, one or more slices need to be highlighted by separating them slightly from the center of the chart. This effect is known as "exploding" slices. Matplotlib provides a specific parameter to control this behavior in the `plt.pie()` function.

Visual Representation:

```
Pie Chart:
   A   B   C

Exploded Slice:
   A  B   C
      ↑
   separated slice
```

Solution: The question asks which parameter is used to separate or "explode" slices in a pie chart. The correct parameter in Matplotlib is `explode`, which takes a list of values indicating how far each slice should be offset from the center. The other options like `separate`, `split`, and `gap` are not valid parameters in Matplotlib. Therefore, the correct answer is `explode`.

Final Answer: explode

Answer: (B)

Q47.

Solution

Concept: The data that individuals leave behind while using the internet is commonly referred to as a digital footprint. It includes browsing history, social media activity, cookies, and online interactions. This footprint can be active (intentional sharing) or passive (collected without direct user input). It plays an important role in privacy, cybersecurity, and online identity management.
Solution: A digital footprint represents the traceable data created when a user interacts with the internet. This includes posts, searches, clicks, and even background data collected by websites and applications. Unlike terms such as digital shadow or cyber trail, the widely accepted and standard term is "digital footprint." It reflects both voluntary and involuntary data collection. A digital cookie is only a small part of this footprint and not the complete representation. Therefore, the correct term for the trail of data left on the internet is Digital Footprint.
Final Answer: Digital Footprint

Answer: (B)

Q48.

Solution

Concept: E-waste refers to discarded electronic devices that contain both valuable and hazardous materials. These hazardous substances can include toxic metals such as lead, mercury, cadmium, and chromium. If not properly recycled or disposed of, they can harm the environment and human health. Proper e-waste management is essential for sustainable development and pollution control.
Solution: Electronic waste consists of discarded electrical and electronic equipment like computers, phones, and appliances. These devices often contain harmful heavy metals such as lead and mercury, which can contaminate soil and water if not handled properly. Other options like carbon, oxygen, gold, silver, or plastic alone are either non-hazardous or incomplete representations of e-waste composition. The primary concern in e-waste management is the presence of toxic substances. Therefore, the correct answer is Lead and Mercury, as they are key hazardous materials found in electronic waste.
Final Answer: Lead and Mercury

Answer: (A)

Q49.

Solution

Concept: Plagiarism refers to the act of using someone else's work, ideas, or intellectual property without proper permission or acknowledgment. It is considered unethical and, in many cases, illegal. In digital environments, plagiarism is a serious violation of academic and professional integrity, often associated with content theft and copyright issues.

Solution: When a person uses another individual's work without giving credit or obtaining permission, they are committing plagiarism. This can include copying text, code, designs, or research. Unlike phishing, hacking, or spamming—which are cybersecurity threats—plagiarism specifically relates to intellectual dishonesty and misuse of creative or academic work. It violates ethical standards and intellectual property rights. Therefore, the correct term for using someone else's work without permission or credit is plagiarism.

Final Answer: Plagiarism

Answer: (B)

Q50.

Solution

Concept: Intellectual Property Rights (IPR) protect original creations such as software code, algorithms, and documentation from unauthorized copying or reuse. Plagiarism or patent infringement occurs when someone copies or rebrands another's original work without permission. On the other hand, Cybercrime refers to illegal activities carried out using computers or networks, such as hacking attempts, malware attacks, and SQL injection, which exploit vulnerabilities in web applications and databases.

Visual Representation:

```
Incident 1: Algorithm copied → IP violation
Incident 2: SQL Injection attempts → Cyber attack
```

Solution: The question describes two incidents. In the first case, a competitor copies and rebrands a newly developed encryption algorithm without permission. This is a clear violation of Intellectual Property Rights, specifically plagiarism or possible patent infringement, as it involves unauthorized use of original software logic. In the second case, unauthorized SQL Injection attempts in server logs indicate malicious exploitation of database vulnerabilities, which is classified as a cybercrime because it involves attacking a system through malicious input to gain unauthorized access or manipulate data. Options (A), (C), and (D) incorrectly misclassify either the IP violation or the cyber attack. Only option (B) correctly identifies the first incident as an IP rights violation and the second as a cybercrime. Therefore, the correct classification is Intellectual Property Rights infringement and Cybercrime.

Final Answer: IPR infringement and Cybercrime

Answer: (B)

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	B	2	A	3	B	4	A	5	A
6	D	7	B	8	B	9	B	10	C
11	C	12	C	13	B	14	B	15	C
16	D	17	D	18	B	19	A	20	A
21	B	22	B	23	A	24	D	25	D
26	B	27	B	28	B	29	C	30	B
31	B	32	B	33	C	34	A	35	B
36	B	37	B	38	D	39	B	40	A
41	B	42	B	43	B	44	B	45	B
46	B	47	B	48	A	49	B	50	B