CUET Computer Science Solved Paper-2022

1. Which of the following function(s) is/are SQL aggregate functions?
   (A) Trim( )   (B) Max( )   (C) Count   (D) Lower( )   (E) Avg( )
   Choose the **correct** answer from the options given below:
   (a) (B) only
   (b) (A), (B) and (C) only
   (c) (B), (C) and (E) only
   (d) (B), (C), (D) and (E) only

2. Consider the given table and answer the question:

Mother Table

MOID	Mname	Mphone	Maddress	Mqualification
A01	Lata Sharma	9999887218	G35, Rohini	B.Ed.
A02	Lovely Singh	9898989899	S-5 Ashok Village	BA
A03	Raisa Soni	9712345657	95, Rajoyri Garden	M.Ed
B01	Anamika Jha	9812345762	F5, Preet Vihar	BA
B02	Lavanya Mehra	6712457591	G9, Okhla	MA

What will be the effect of following command?
Select Mname as "Name", Maddress as "residence" from Mother;
   (a) It will change the field headings temporarily Mname to Name and Maddress to residence.
   (b) It will give error message
   (c) It will change all the Names, addresses to Name and residence
   (d) It will change the field names Mname to name and Maddress to residence

3. To retrieve the given column from Mother table:
   Mname
   Lata Sharma
   Lovely Singh
   Lavanya Mehra
   The correct command is:
   (a) Select Mname from Mother Where Mname is 'Lata Sharma', 'Lovely Singh', 'Lavanya Mehra'.
   (b) Select Mname from Mother where Mname like '%L';
   (c) Select Mname from Mother where Mname like 'L%';
   (d) Select Mname from Mother starting with L;

4. Which of the following query will change the name – 'Lata Sharma' to 'Elina'?
   (a) Updata Mother where Mname = 'Lata Sharma';
   (b) Updata Mother set Mname = 'Elina' where Mname = 'Lata Sharma';
   (c) Alter table Mother set Mname = 'Elina' where Mname = 'Lata Sharma';
   (d) Alter table Mname = 'Elina' where Mname = 'Lata Sharma';

5. What will be result of the following query?
   Select distinct Mqualification from Mother;
   (a) It will display the mqualification column after filtering it
   (b) It will display each mqualification number of times
   (c) It will display each mqualification once after removing the duplicates
   (d) It will give error message

6. Identify an application software which is required by a client to request any resource and to receive response of his request out of the following:
   (a) Google
   (b) Web Browser
   (c) Website
   (d) Web Page

7. What is the output of the code given below?
   List = [1, 2, 3]
   List[3]
   (a) NameError
   (b) ValueError
   (c) IndexError
   (d) No Error, it will display 3

8. Which of the following offer secure communication?
   (a) Radio waves
   (b) Infrared
   (c) Laser
   (d) Microwaves

9. Which of the following access mode is used to open binary file in read mode only?
   (a) wb
   (b) a
   (c) rb
   (d) r

10. Choose the correct statements about Database:
    (A) Database schema is the design of database
    (B) Database is the skeleton of the database that represents the structure
    (C) Meta data is data about constraint
    (D) We may not retrieve the data through queries

    Choose the **correct** answer from the options given below:
    (a) (A) and (B) only
    (b) (B) and (C) only
    (c) (C) and (D) only
    (d) (D) and (A) only

11. Match **List-I** with **List-II**

List-I		List-II	
Terms		**Definitions**	
(A) Bus Topology		(I)	With Central Networking device like hub or switch.
(B) Star Topology		(II)	Each Node is connected to two other devices, one each and either side
(C) Ring Topology		(III)	There are multiple branches and also known as hybrid topology
(D) Tree Topology		(IV)	A single backbone shared among the nodes.

    Choose the **correct** answer from the options given below:
    (a) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)
    (b) (A)-(IV), (B)-(III), (C)-(I), (D)-(II)
    (c) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)
    (d) (A)-(I), (B)-(II), (C)-(IV), (D)-(III)

12. In context of network type Local Area Network (LAN), which of the following statement(s) are correct:
    (A) It covers a small area, within a building or a campus
    (B) Less congestion
    (C) Less fault tolerance
    (D) It operates on the principle of broadcasting
    (E) Speed of LAN is slower than MAN and WAN

    Choose the **correct** answer from the options given below:
    (a) (A), (B) and (C) only
    (b) (C), (D) and (E) only
    (c) (B), (C) and (D) only
    (d) (A), (B) and (D) only

13. Identify the type of error which is raised when variable name is not defined?
    (a) TypeError
    (b) NameError
    (c) ValueError
    (d) SyntaxError

14. Which of the following is a 12 digit hexadecimal number that uniquely identifies a machine on a network?
    (a) MAC address
    (b) IP address
    (c) Processor Number
    (d) ISP Code

15. Match **List-I** with **List-II**

List-I		List-II	
(A) Primary key		(I)	All the values in a column distinct
(B) Degree		(II)	Number of tuples in a table
(C) Unique		(III)	The column which can Uniquely identify each tuple in a table
(D) Cardinality		(IV)	Number of Attributes in a table

    Choose the **correct** answer from the options given below:
    (a) (A)-(I), (B)-(IV), (C)-(II), (D)-(III)
    (b) (A)-(III), (B)-(IV), (C)-(I), (D)-(II)
    (c) (A)-(III), (B)-(I), (C)-(II), (D)-(IV)
    (d) (A)-(III), (B)-(IV), (C)-(II), (D)-(I)

16. Tamisha has written SQL queries and used several functions that take numeric values as input and return a numeric value as result. Identify the category of function of SQL used for the above:
    (a) String
    (b) Math
    (c) Data and Time
    (d) Integer

17. Pandas DataFrame.append( ) method merges two Dataframes. To get column labels in sorted order parameter is used?
    (a) Arrange
    (b) sort
    (c) Order by
    (d) sorted

18. Abhishek wants to set up a network and use a communication protocol that establishes a dedocated and direct connection between two communicating devices. The protocol should define how two devices will authenticate each other and establish a direct link between them. The communicating device should have duplex modes for using the protocol. Identify the protocol from the following:
    (a) HTTP
    (b) PPP
    (c) TCP/IP
    (d) SMTP

19. Ethernet cards can support data tansfer between _____.
    (a) 100 Kbps and 1000 Kbps
    (b) 10 Mbps and 1000 Mbps
    (c) 10 Kbps and 10 Mbps
    (d) 1 Mbps and 1 Tbps

20. Scatter plots are sometimes called correlation plots because _____.
    (a) They are used to show comparison between variables of no relation between them in different colours.
    (b) It is a two dimensional data visualization
    (c) They use dots to represent values
    (d) They show how two variables are correlated

21. Match the following list for Line graph markers:

List-I	List-II
Marker Value	**Marker type**
(A) "3"	(I) Diamond
(B) "1"	(II) Octagon
(C) "8"	(III) tri_down
(D) "D"	(IV) tri_left

Choose the **correct** answer from the options given below:

(a) (A)-(IV), (B)-(II), (C)-(I), (D)-(III)

(b) (A)-(IV), (B)-(III), (C)-(II), (D)-(I)

(c) (A)-(I), (B)-(III), (C)-(II), (D)-(IV)

(d) (A)-(II), (B)-(IV), (C)-(III), (D)-(I)

22. Mrinal has missed some exams in UT4. The teacher wants to see the total number of tests missed in all by the students. If dataset 'df' has names of students at index and subject names as columns, then select the correct option that will count the students, who missed the test:

(a) print(df .isnull( ).sum( ))

(b) print(df .isnull( ).sum( ).sum( ))

(c) print(df .isnull(sum(sum( ))))

(d) print(df .sum(isnull()))

23. Identify the correct statement to add a new row to a DataFrame DFone. The content of DFone are given below:

	L1	L2	L3
One	21	22	23
Two	31	48	21
Three	46	21	23

Select correct option to add a row with a level 'Four' and values 82, 84, 86

(a) DFone.addrow['Four'] = [82, 84, 86]

(b) DFone.loc('Four') = [82, 84, 86]

(c) DFone.loc['Four'] = [82, 84, 86]

(d) DFone['Four'] = (82,84,86)

24. In Pandas series we can define our own labelled index. Identify the incorrect statement(s):

(A) Series require more memory

(B) There can be NaN values in series

(C) Labelled indexes can have letters or numbers

(D) Elements in series can be indexed in descending order

(E) Indexing starts with zero and is fixed

Choose the **correct** answer from the options given below:

(a) (A), (C) and (D) only (b) (E) only

(c) (B), and (E) only (d) (D) and (E) only

25. Identify correct option to import data from a CSV file named 'Myfile.csv' to a dataframe DF1. The values are separated by comma(,) (assume pd as alias name for pandas) :

(a) DF1 = pd.Read_csv('Myfile.csv', sep = (,))

(b) DF1 = pd.readcsv('Myfile.csv', sep = ',')

(c) DF1 = pd.read_csv('Myfile.csv', sep = ',')

(d) DF1 = pd.read_csv('Myfile.csv', sep = (','))

26. Identify the correct option to create series of names of weekdasy and assign day number starting from 1 as index values where pd is the pandas object:

(a) wd = pd.Series(['Mon'], ['Tue'], ['Wed'], ['Thu'], ['Fri'], ['Sat'], index = [1, 2, 3, 4, 5, 6, 7])

(b) wd = pd.Series(['Mon', 'Tue', 'Wed', 'Thu', 'Fri', 'Sat', 'Sun'], index = (0)]

(c) wd = pd.Series(['Mon', 'Tue', 'Wed', 'Thu', 'Fri', 'Sat', 'Sun'], index = [1,2, 3, 4, 5, 6, 7])

(d) wd = pd.Series(['Mon', 'Tue', 'Wed', 'Thu', 'Fri', 'Sat', 'Sun'], index(1, 2, 3, 4, 5, 6, 7))

27. Quartiles are the measures which divide data into four equal parts, and each part contains equal number of observations. Calculating quartiles requires calculation of _____.

(a) Mean (b) Median

(c) Mode (d) Range

28. What is meant by attenuation?

(a) Cable disturbance

(b) Cable shortage

(c) Loss of signal strength

(d) Unwanted signals with transmission

29. Following are the sequence of steps of host a website in a jumbled order. Arrange them in correct order:

(A) create logins with appropriate rights and note down IP address

(B) upload the files in properly organised folder on the allotted space

(C) Get domain name mapped to the IP address of web server

(D) Sele4ct web hosting service provider according to the requirement

(E) Identify the domain name and get it registered

Choose the **correct** answer from the options givenbelow:

(a) (D), (E), (B), (A), (C)

(b) (D), (E), (A), (C), (B)

(c) (D), (E), (B), (C), (A)

(d) (D), (E), (A), (B), (C)

30. Arrange steps in proper sequence to plot a chart in python using matplotlib on data from a csv file:

(A) labelling the axis of chart

(B) importing pandas and matplotlib.pyplot Library module

(C) Displaying graph using show( ) method

(D) importing data from a csv file

(E) plotting the graph using plot( )

Choose the **correct** answer from the options given below:

(a) (B), (D), (E), (D), (A)

(b) (B), (E), (D), (A), (C)

(c) (B), (D), (A), (E), (C)

(d) (B), (D), (E), (A), (C)

31. With reference to given DataFrame named "df", what will the output of the given statement?

	hno	Hname	Nrooms
0	1	Taj	45
1	2	Maurya	56
2	3	Hilton	78
3	4	Amatra	23
4	5	Picasso	67

print(df.iloc[:2])

(a)
	hno	Hname	Nrooms
0	1	Taj	45

(b)
	hno	Hname
0	1	Taj
1	2	Maurya

(c)
	hno	Hname	Nrooms
0	1	Taj	45
1	2	Maurya	56
2	3	Hilton	78

(d)
	hno	Hname	Nrooms
0	1	Taj	45
1	2	Maurya	56

32. Consider the average height and weight of persons aged 8 to 16 stored in the following two lists:
height = [121.9, 124.5, 129.5, 134.6]
weight = [19.7, 21.3, 30.5, 25.9]
To plot a line chart, Ankush write the statement:
plt.plot(_____, _____, _____ = 'green')
Missing   Missing   Missing
Part 1   Part 2   Part 3
Identify the correct blanks:

Height vs Weight line chart

(a) height, weight, color
(b) weight, height, color
(c) plt.height, plt.weight, color
(d) plt.height, plt.weight, plt.color

33. Given the following dataframe (df), choose the correct option to add to column for 'ply' subject with values 30, 40, 50, 60 respectively:

	Name	IP
0	Tarma	40
1	Ritu	35
2	Vaishali	70
3	Sarthak	80

(a) df = [30, 40, 50, 60]
(b) df.'phy' = [30, 40, 50, 60]
(c) df['phy'] = [30, 40, 50, 60]
(d) df = {'phy' : [30, 40, 50, 60]}

34. What will be the output of the following code:
import pandas as pd
import numphy as np
X = [30, 5, 20, 60, 25, 34, 27, 30, 42, 60]
Y = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']
Z = pd.Series(Y, X)
print(Z.tail(6))

(a) First 6 Rows will be printed
(b) Last 6 Rows will be printed
(c) All the Rows will be printed
(d) Value 6 will be printed

35. Which of the following library is used for putting graphs and visualization in python?
(a) Maths   (b) Matplotlib
(c) Numpy   (d) Series

36. Consider the 'Sale' Table and 'Model' Table from the Bike Showroom and answer the questions.

Table Sale

Invoice No	Bike ID	Cust.ID	Saledata Payment	Emp_ID	Saleprice	Commission Mode
I1	B01	C1	2020-01-24 Credit Card	E2	150000	18000
I2	B02	C2	2020-01-18 Cheque	E3	250000	25000
I3	B03	C3	2021-11-14 Online	E10	63000	9000
I4	B04	C2	2020-10-18 Bank Finance	E8	83000	11000
I5	B05	C3	2022-01-19 Credit Card	E7	98000	14000
I6	B03	C6	2021-04-20 Bank Finance	E6	69000	10000

Table : Model

Bike ID	Manufacturer	Quantity
B01	Yamaha	100
B03	Kawasaki	55
B04	Bajaj	80
B05	Honda	65

Choose the correct SQL query to display the sum of commission earned by Emp_ID E2, E8 and E6

(a) Select * from Sale where sum(Commission) in E2, E8, E6;

(b) Select sum(Commission) from Sale where Emp_ID in ('E2', 'E8', 'E8');

(c) Select sum(Commission) from Sale where Emp_ID between ['E1', 'E8'];

(d) Select * from Sale where sum(Commission) = Emp_ID('E2', 'E8', 'E6');

37. Choose the correct query to display the customer ID and number of bikes purchased if the customer has purchased more than 1 bikes from Sale Table:

(a) Select CustID, count(*) "No of bike" From Sale Group by CustID;

(b) Select * from Sale having count(*) > 1;

(c) Select CustID, count(*) from Sale Group By CustID having count(*) > 1;

(d) Select CustID, count(*) from Sale Group By InvoiceNo;

38. Choose the correct query to display number of bikes purchased by each customer from Sale Table:

(a) Select * from Sale;

(b) Select CustID, Count(*) As "No. of bikes "from Sale Group by CustID;

(c) Select CustID, count "No of bikes" from Sale;

(d) Select BikeID from Sale;

39. Choose the correct SQL query to display the Saleprice of only those Bikes which are manufactured by Yamaha?

(a) Select Saleprice, Manufacturer from Sale S, Model M where M.Manufacturer = "Yamaha";

(b) Select Saleprice, Manufacturer from Sale, Model where Model.Manufacturer = "Yamaha";

(c) Select Saleprice, Manufacturer from Sale, Model where Model.Manufacturer = "Yamaha" Group by Manufacturer;

(d) Select Saleprice, Manufacturer from Sale S, Model M where M.Manufacturer = "Yamaha" and S.BikeID = M.BikeID;

40. With reference to the tables MODEL and SALE from the database BIKE show room, which operation can be performed on the two tables?

(a) Union   (b) Intersection

(c) Cartesian Product   (d) Difference

DIRECTIONS : *Read the following passage and answer the following question.*

Kamakshi prepared a project on "wellness" and by mistake she left her project file at her friend's residence. Her friend Aditi returned her file but before returning she copied some content from Kamakshi's file. Aditi also copied some data from internet and pasted it in her project report. While surfing over the internet

Aditi shared some of her personal details on the web and later she was surprised to see that some content has been posted on the net from her social account. She just tried to update her hardware and removed all obsolete computer hardware. Now, she is having lot of e-waste to manage.

41. Aditi submitted project and presented work of Kamakshi as her own work. This act of Aditi is an example of:

(a) Copyright Infringement

(b) Hacking

(c) Plagiarism

(d) Cracking

42. Aditi's social account shows some posts made by Aditi, though Aditi has not actually posted them. This act of posting content by someone else on your name is an example of:

(a) Ransomware

(b) Copyright Infringement

(c) Patent Violation

(d) Identify theft

43. The act of Aditi of copying data from internet without obtaining permission from the owner [or without paying for it, if it is being sold] isan example of:

(a) Plagiarism

(b) Trademark Infringement

(c) Copyright Infringement

(d) Hacking

44. Aditi should manage the ewaste properly:

(A) She should not throw the ewaste in water

(B) She should reuse the electronic waster after making slight modification

(C) She can sell her ewaste to an NGO which recycles the ewaste into some useful product

(D) She can burn the ewaste and get rid of it

(E) She can throw all her ewaste in the domestic garbage bin

Choose the **correct** answer from the options given below:

(a) (A), (D) and (E) only

(b) (A), (B) and (C) only

(c) (A), (B) and (E) only

(d) (A), (B) and (D) only

45. The term which has been derived from the literal practice of secretly listening to the conversations of people by standing under roof of a house?

(a) Snooping   (b) Routing

(c) Buffering   (d) Evasdropping

46. Identify the statistical function for analysis of data provided by pandas:

(a) max( )   (b) rename( )

(c) tail( )   (d) mod( )

47. Match List-I with List-II.

List-I	List-II
(A) DataFrame.values	(I) returns false if DataFrame is not empty
(B) DataFrame.T	(II) Display tuple representing dimensionality of DataFrame
(C) DataFrame.shape	(III) Displays Numpy ndarray having all values in Data Frame without axis label.
(D) DataFrame.empty	(IV) It returns transpose of the DataFrame

Choose the **correct** answer from the options given below:

(a) (A)-(I), (B)-(III), (C)-(II), (D)-(VI)
(b) (A)-(III), (B)-(IV), (C)-(I), (D)-(II)
(c) (A)-(III), (B)-(IV), (C)-(II), (D)-(I)
(d) (A)-(III), (B)-(II), (C)-(IV), (D)-(I)

48. Given a file "Resultdata.csv" containing the following:

	Roll_No	Name	Sub1	Sub2
0	101	Beena	40	29
1	102	Meena	75	45
2	103	Reena	83	37

Mohit gave the following statement/command, predict the output.

> > > marks = pd. read_csv("Resultdata.csv", names = ['RNO', 'NAMES', 'ENG', 'MATHS']) > > > marks

(a)
RNO	101	102	103
NAMES	Beena	Meena	Reena
ENG	40	75	83
MATHS	29	45	37

(b) ValueError

(c)
	RNO	NAMES	ENG	MATHS
0	101	Beena	40	29
1	102	Meena	75	45
2	103	Reena	83	37

(d) NameError

49. Difference between loc( ) and iloc( ):

(a) Both are label indexed based functions.
(b) Both are integer position-based functions.
(c) loc( ) is label indexed based function and iloc( ) is integer position based function.
(d) iloc( ) is integer position based function and loc( ) is index position based function.

50. Find valid IP Address out of the following:

(a) 10 : B5 : 03 : 63 : 2E : FC
(b) 192. 186. 0.10
(c) 192. 258. 10.20
(d) 10 : B5 : 03

Hints & Explanations

1. (c) Average function: It is used to perform calculations on multiple rows of a single column of a table. It is also used to summerise the data.

Sql aggregate function:
Count () → returns the no. of rows
Sum () → returns the sum
Avg () → returns the average value
Max () → returns the largest value
Min () → returns the smallest value
First () → returns the first value
Last () → returns the last value

In the given question Trim (), Lower (). are not aggregate function rest are aggregate function that is (B) Max. (c) Count (), (E) Avg ().

So, option (c) B, C, E is our Answer.

2. (a) The given sql query is
Select Mname as "Noun", Maddress as "residence" from mother

In the given query Mname is a attribute after that an alias is used which is used to temporarily change the attribute name to improve the user view.

Sql Aliases. Sql aliases are used to give a table, or a column in a table, a temporary name and make it more readable.

- Aliases are only exist for the duration of query
- Alias is created with the 'As' keyword.

(i) first option is correct because it changes both the attribute Mname into names and Madrress into "residance", temporarily.

Other options are wrong.

3. (c) Select Mname from Mother whose Mname like 'L%'; is correct because. 'Like' is logical operator is sql.

- Like is used in SELECT, UPDATE and DELETE statements only.
- It filter the record from columns based on pattern specified in sql query. This can be done by using two wild card operator with keyword "like"

(i) % (percent sign) → matches zero, one, or more than one character.

(ii) _ (underscore) → matches only single character. Select Column i, column ii, ... column X from table Name where column LIKE pattern

Option (i) and (iv) are invalid queries.
Option (ii) will give Mname having word end's with 'L'
Only (iii) is correct it will give these names only which starts with letter 'L' only.

4. (b) Update syntax
Update table-name SET column = value - 1, column = value 2........ where condition;
So, option (b) is correct.
UPDATE Mother Set Mname = 'Elina' where Mname = 'Lata sharma';
UPDATE → command is used to update any value in the column.
After → After is used when we want to add, drop Rename modify any attribute name/or column name.

5. (c) Select distinct Mqualification from Mother; in the given query distinct is used to remove duplicates from column name Mqualification So, it will only display unique values and remove duplicates.
Syntax:
Select distinct column 1, column 2 .... from table-name

6. (b)
i. Google is search engine it is not any application software.
ii. Web Browser is chent side used application software used to request and receive any resource and information in the form of text, audio, video, image format.
iii. Website is collection of webpages and related content that is identified by a common domain name and published an web server.
iv. Web page → A hyper text document on any world wide web (www). or single page in a website.

7. (c) Index Error
List = [1, 2, 3]
List [3]

	1	2	3	4	5
Index →	0	1	2	3	4

If we have a list 1, 2, 3, 4, 5 in python then the index starts from (0) and goes to (length –1).
The first element of the list is stored at 0th index second element stored at 1th index and so on.
So, List [0] gives 1
List [i] gives 2
List [2] gives 3
[List [3] gives 4] But we have only [1, 2, 3] in the list.
So, it will give error which is indexing eror name [#index Error.]

8. (a)
- One of the most common use of the radio waves is to establish a secure communication network between planes and air traffic control unit. Radiowaves are more secure then infrared, Laser, and microwaves,

- Radio wave have high wavelength and low frequency
- Radio waves are used in RADAR, Satellite, air to air contact between planes etc.

9. (c)
- wb → 'wb' mode opens the file in binary formed for writing
- a → 'a' mode can only be written into and cannot be read from.
- rb → To open a file in binary formed, add 'b' to the mode parameter, Hence, the 'rb' mode opens the file in binary format for reading.
- r = read mode.
  r = read.
  w = write
  b = binary.

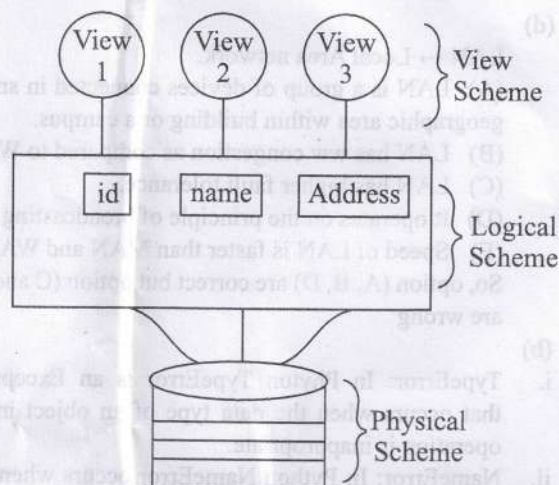10. (a) (A) → Database Schema is the logical design of database is correct.
(B) → Databox is the skeleton of the database that represent the structure.
Types of database Schema.
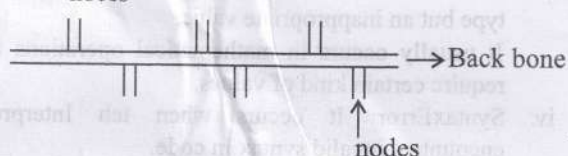(i) Logical Schema
(ii) Physical Schema
(iii) View Schema

Option (c) is incorrect as metadate is data about data.
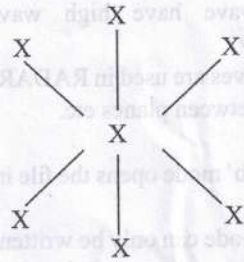Option (d) is false because we use queries to retrieve data from database.

11. (c)
i. Bus Topology is a single backbone shared among the noces

ii. Star Topoloty is like central networking device like switch and hubs.
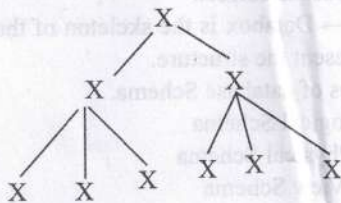
iii. **Ring Topology:** Each node is connected to two other devices, one each and either side.

iv. **Tree topology :** There are Multiple branches and also known as hybrid topology.

12. (d)

LAN → Local Area network.

(A) LAN is a group of devices connected in small geographic area within building or a campus.

(B) LAN has ww congestion as compared to WAN

(C) LAN has higher fault tolerance.

(D) It operates on the principle of broadcasting.

(E) Speed of LAN is faster than MAN and WAN

So, option (A, B, D) are correct but option (C and E) are wrong

13. (b)

i. **TypeError:** In Phyton TypeError is an Exception that occurs when the data type of an object in an operation is inappropriate.

ii. **NameError:** In Python NameError occurs when we try to access a variable or function that is not defined or before it is defined.

To solve the error, variable name should be spelled correctly and access the variable only after defining it.

iii. **ValueError:** It is an exception that occurs when a function receives an argument of the correct data type but an inappropriate value.

It usually occurs in mathematical operations that require certain kind of values.

iv. **SyntaxError:** It occurs when teh Interpreter encounters invalid syntax in code.

14. (a)

i. **Mac address:** Media Access control (MAC) address is a 12 digit hexadecimal number assigned to each device connected to the network.

ii. **IP address:** IP address is a unique address that identifies a device on the internet or a local network.

iii. **Processor number:** It is four digit processor number, in which first digit represents the generation, Example 9800 is a 9th gen processor, while one labelled 8800 is 8th gen technology.

iv. **ISP code:** Internet Service provider (ISP) is a company that provides individuals and organizations access to the internet and other related services.

15. (b)

i. Primary key → Column which can uniquely identify each tuple in a table.

ii. Degree → refers to no. of attribute/column in a table.

iii. Cardinality → refers to the number of tuples/rows in a table.

iv. Unique → keyword used in sql quires in which all the values in a column distinct.

Option (b) is correct

16. (b)

- String and Integer is a data type not a function. So, eliminated. Because in the given statement Tamisha has written SQL queries and used several function that take numeric input and return numeric output. The only correct option is 'math' function.

∴ Mathematical functions in SQL.

ABS(), Log10(), Power(), cos(), Sin(), Tan(), Log(), Radians(), Pi() etc.

- Math function is sql takes numeric input and return numeric output.

- Date and time are also data types used to store date and time.

Date → format: yyyy-mm-dd

Datetime - format YY-MM-DD HH-MI-SS

Timestamp - format: YYYY-MM-DD HH:MI:SS

Year - format: YYYY or YY

17. (b)

i. Python - Pondas dataframe, oppend () is a function used to append rows of other dataframe to the end of the give dataframe, returning a new dataframe object.

ii. Syntax: Dataframe. append (other, ignore-index=False, varify-integrity = false, sort = none)

iii. In the above syntax, one of the parameter is 'sort' which is used to sort columns in order.

iv. The default sorting is deprecated and will chnage to not-sorting in a future version of pondas. explicitly pass "sort = True" to silence the warning and sort.

18. (b) HTTP → Hypertext Transfer Protocol

PPP → Point - to - point A dedicated line of transmission between two devices uses PPP protocol.

TCP/IP → Transmission control Protocol/Internet Protocol.

SMTP → Simple Mail Transfer Protocol.

19. (c) A standard Ethernet card can support data-transfer between 10 kbps and 10 mbps.
20. (*)
21. (b) (A) → (IV), (B) → (III), (C) → (II), (D) → (I)

Ma + plot lib. markers.

A) "3" → tri-left

B) "1" → tri-down

C) "8" → Octagon

D) "D" → Diamond

Functions to handle markers used by the markers functionality of PLOT, SCATTER, ERRORBAR.
22. (*)
23. (c) To add a new row in the given dataframe we use different methods like concate, append and loc

i. df. loc [inder] = ['A', 2, 3] → will add A, 2, 3 at 'index' location just like above.

Option (c) is correct because it will add 'four' to last row with values [82, 84, 86]
24. (*)
25. (*)
26. (*)
27. (b) Calculating quartics requires calculation of medians
28. (c) Attenuation → Term refers to any reduction is strength of a signal.
29. (c) D, E, B, C, A → is correct sequence.
30. (c) B, D, A, E, C → is correct sequence.
31. (d) Function in python is defined in the Pandus module that helps us to select a specified row or column from the data set.

	Nno.	Hname	Nrooms
0	1	Taj	45
1	2	Maurya	56

32. (b) plot. plot (x, y, color = 'green')

x axis = weight

y axis = height

color = green
33. (c) If ['phy'] = [30, 40, 50, 60]
34. (b) last 6 rows will be printed using z.tail(16) method.
35. (b) matplot lib → is a comprehensive library for creating static animated and interactive visualizations in python.
36. (b) Select sum (commission) from sale where Empid in ('E2', 'E8', 'E6');
37. (c) Select Cust ID, count (*) from sale grouping cust ID. having count (*) > 1;

Customer ID	No. of Bike
C2	2
C3	2

This query shows only Customer ID having bought more than 1 bike.

38. (b) Select Cust ID, count (*) As "no. of bikes" from sale group by Cust ID:

Customer ID	No. of Bike
C1	1
C2	2
C3	2
C6	1

Count (*) will count the no. of times a cust ID repeats and will show a table which Cust ID. no. of bikes as a column of table.
39. (*) Sql query to display the sole price of only those bikes which are manufactured by Yamaha.
40. (a)

i. Union (∪) → show all values and common only once.

ii. Intersection (∩) → shows common to both table

iii. Cartesian product (×) → multiplication of table 1 × table 2 rows.

iv. Difference (−) → subtract common of two table from table one and show only first table.

Answer is (a) union because only option that satisfy the condition.

Result table will be (Table sale + Table model − Bike ID (Common))
41. (c)

i. Copyright Infringement → is the use or production of copyright protected material without the permission of the copyright holder.

ii. Hocking → Hocking refers to activities that seek to compromise digital devices, such as computers, smartphones, tablets and even entire networks.

iii. Plagiarism → The act of copying another persons ideas, words or work and pretending they are your own;

iv. Cracking → Trying to get into computer system in order to steal, corrupt, or illegitimately view data.

From the above context given plagiarism is the act perform by Aditi.
42. (d)

i. Ransomware → A type of malicious software designed to block access to a computer system mitti a sum of money x paid.

ii. Patent violation → violation of a patent owner's rights with respect to some invention.

iii. Identity theft → When some one steal your information like name, number, id etc.
43. (c) This act is called copyright infringement.

Copyright infringement → The act of copying any data or work protected by copyright without permission for the usage of his own work.

44. (b) (2) → A, B, C
   i. Ewaste should not be burnt, it generate toxic gases which are harmful.
   ii. Ewaste should nto be thrown directly to the domestic garbage as it can harmful for humans does well as animals.
   Option A, B, C are correct for Ewaste management.

45. (d)
   i. Snooping → look around place secretly, in order to disorder things or find information about someone or something.
   ii. Routing → Deciding route for a signal.
   iii. Buffering → Temporary storage.
   iv. Evasdropping → Practice of actually standing under the caves of a house, listening to conversations inside.

46. (c) Tail () → method returns a specified no. of last rows.
   → Tail method returns the last 5 rows is a numbers is not specified.
   → Tail is a function in pandas used for analysis of data.

47. (c)
   i. Dataframe. values → Displays jumpy ndarray having all values in data frame without axis label.
   ii. Dataframe. T → It returns traspose of the dataframe.
   iii. Dataframe.shape → Display tuple representation dimensionality of dataframe
   iv. Dataframe. empty → It returns false if Dataframe is not empty.

48. (*)

49. (c) loc() is label indexed based function and iloc() is integer position based function.
   - Loc () is used to select rows and columns by names/labels
   - iloc () is used to select rows and column by integer index/position, zero based index position.

50. (b)
   - A valid IP address must be in the form of A.B.C.D, where A, B, C, and D are numbers from 0-255.
   - The numbers cannot be 0 prefixed unless they are 0.
   - Option A, C, D are not valid
   - Only Option (b) is valid.