Solution

PREBOARD EXAM- 2 2025-26

Class 12 - Informatics Practices

Section A

1.
   (b) False
   Explanation:
   False

2.
   (d) plt.title()
   Explanation:
   plt.title()

3.
   (c) /index.htm
   Explanation:
   /index.htm

4. **(a)** Date function
   Explanation:
   Date function

5. **(a)** Elk Cloner
   Explanation:
   Elk Cloner

6.
   (c) Hub
   Explanation:
   Hub

7.
   (b) modem
   Explanation:
   modem

8. **(a)** True
   Explanation:
   True

9.
   (b) Document
   Explanation:
   Document

10.
   (c) thoroughly tested because people are paying to use it
   Explanation:
   thoroughly tested because people are paying to use it

11.

   (d) 3456.88

   Explanation:

   3456.88

12.

   (c) ORDER BY

   Explanation:

   ORDER BY

13. **(a)** Free Libre Open Source Software

   Explanation:

   Free Libre Open Source Software

14. **(a)** Copyright infringement

   Explanation:

   Copyright infringement

15.

   (b) Both Statement A and B is correct.

   Explanation:

   Both Statement A and B is correct.

16.

   (d) Desc, Asc

   Explanation:

   Desc, Asc

17.

   (c) Trademark

   Explanation:

   Trademark

18.

   (c) pandas.read_csv('sectors_economy.csv', header = 0, index_col = 0)

   Explanation:

   pandas.read_csv('sectors_economy.csv', header = 0, index_col = 0)

19.

   (c) SUM()

   Explanation:

   SUM()

20.

   (b) Both A and R are true but R is not the correct explanation of A.

   Explanation:

   Both A and R are true but R is not the correct explanation of A.

21. **(a)** Both A and R are true and R is the correct explanation of A.

   Explanation:

   Both A and R are true and R is the correct explanation of A.

Section B

22. Web hosting can be of four types as follows:

      i. free hosting

     ii. virtual or shared hosting

    iii. dedicated hosting

    iv. co-location hosting

<div align="center">OR</div>

Gateway: A gateway is a computer on a network that provides the interface between two applications or networks that use different protocols. They are also used to provide a connection to the Internet. A gateway in a network converts information from one protocol to another and then transfers it over the web. Gateways are also known as protocol converters because they play an important role in converting protocols supported by traffic on different networks.

There are 2 types of gateways: Unidirectional Gateways and Bidirectional Gateway.

Plugins: Plugins are basically software that adds extra functionality over the existing ones in a software application. They enable apps and programs to take on new capabilities without getting completely modified.

Examples of plugins:

- Grammarly - Spelling & grammar checker.
- WooCommerce - eCommerce for WordPress.

23. Result: 14

24. Harjat's query has below error:

The GROUP BY clause should come after the FROM clause.

Corrected SQL statement:

SELECT Dept, SUM(Comm)

FROM EMP

GROUP BY Dept;

25. Group by clause is used in a Select statement in conjunction with aggregate functions to group the result based on distinct values in column.

<div align="center">OR</div>

LENGTH() function is used to return the number of characters in a character expression.

26.   i. It helps to promote E-commerce

    ii. It includes high penalty for cyber crime

   iii. It provides filing online forms

   iv. It enhances the corporate business

27.
```
2    Raj
5    Ankur
6    Harsh
dtype: object
2    Raj
5    Ankur
dtype: object
```

if other than existing index value is provided to reindex then NaN will be displayed.

28. DataFrame_Object.iloc[startIndex : endlndex]

<div align="center">OR</div>

Pandas Series is a one-dimensional labeled array capable of holding data of any type (integer, string, float, python objects, etc.). The axis labels are collectively called index.

Example:

import pandas as pd # simple array

data =pd.Series([1,2,3,4,5])

print(data)

<div align="center">**Section C**</div>

29. COUNT() function returns the total number of values or rows of the specified field or column. COUNT (*) is a special function, as it returns the count of all rows in a specified table. It includes all the null and duplicate values.

30.   i. ROUND() function rounds a number to certain decimal places. Here, number of decimal places is 3 and the number is 8.72 . So, the output will be 8.720

ROUND (8.72, 3);
8.720

ii. ROUND() function rounds a number to certain decimal places. Here, number of decimal places is 0. So, as per rounding rules the integer part increases by 1 to give 10.

ROUND (9.8);
0

OR

The INSTR function searches for given second string into the first string and returns the position.

Syntax INSTR(str1, str2)

e.g. mysql >SELECT I NSTR('COURSE', 'OUR');

The output will be 2 because the position of string 'OUR' is at 2 in the given string 'COURSE'.

31. **Output**

	a	b
1	20.0	33
2	85.0	45
3	46.0	57
4	23.0	12
5	56.0	34
6	NAN	82
7	NaN	49

32. a. Display the name of the month from the given date value:

SELECT DATENAME(MONTH, YourDateColumn) AS MonthName;

(Replace YourDateColumn with the actual column containing your date values)

b. Display the day of the month from the given date value:

SELECT DAY(YourDateColumn) AS DayOfMonth;

(Replace YourDateColumn with the appropriate column name)

c. Count the number of characters in a given string:

SELECT LEN(YourStringColumn) AS CharacterCount;

(Replace YourStringColumn with the actual column containing your string data)

OR

The HAVING clause was added to SQL because the WHERE keyword could not be used with aggregate functions.

Section D

33. **Read the text carefully and answer the questions:**

Consider the following Data Frame df and answer questions

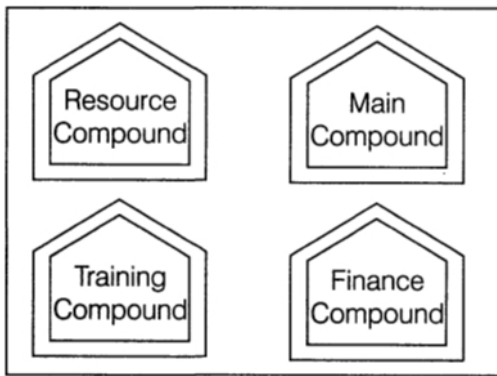|	delhi	mumbai	kolkatta	chennai
hospitals	200	300	100	50
population	10	20	30	40
schools	250	350	400	200

(i) print(df[['delhi', 'chennai']])

(ii) print(df.delhi['hospitals']

(iii) print(df.shape)

(iv) df.kolkatta['population']=50

34. **Read the text carefully and answer the questions:**

Learn Together is an educational NGO. It is setting up its new campus at Jabalpur for its web-based activities. The campus has four compounds as shown in the diagram below:
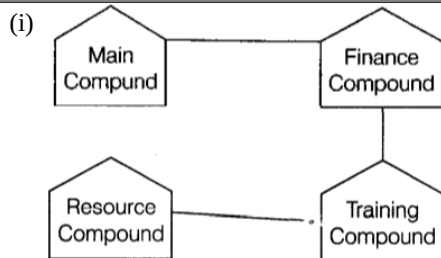
Centre to centre distance between various compounds as per architectural drawing (in m) is as follows

Main Compound to Resource Compound	110 m
Main Compound to Training Compound	115 m
Main Compound to Finance Compound	35 m
Resource Compound to Training Compound	25 m
Resource Compound to Finance Compound	135 m
Training Compound to Finance Compound	100 m

Expected number of computers in each compound are as follows

Main Compound	5
Resource Compound	15
Training Compound	150
Finance Compound	20

(i)

(ii) The most suitable place to house the server is Training Compound as it has maximum number of computers.

(iii) i. **Repeater:** As per one layout (shown in (i)), the repeater can be avoided as all distances between the compounds are <=100 m.

    ii. **Hub/Switch:** Training compound as it is hosting the server.

(iv) **(a)** Optical fibre

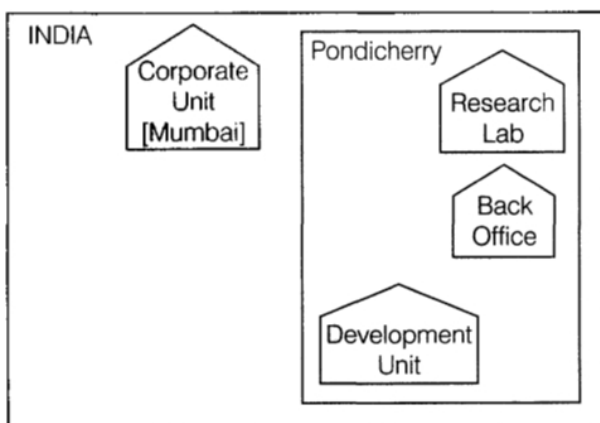   **Explanation:**

    Optical fibre

<div align="center">OR</div>

Read the text carefully and answer the questions:

Bias Methodologies is planning to expand their network in India, starting with three cities in India to build infrastructure for research and development of their chemical products.

The company has planned to set up their main office in Pondicherry at three different locations and have named their offices as Back Office, Research Lab and Development Unit. The company has one more research office namely Corporate Unit in Mumbai. A rough layout of the same is as follows:

Approximate distance between these offices are as follows

From	To	Distance
Research Lab	Back Office	110 m
Research Lab	Development Unit	16 km
Research Lab	Corporate Unit	1800 km
Back Office	Development Unit	130 km

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

Research Lab	158
Back Office	79
Development Unit	90
Corporate Unit	51

(i) LAN and MAN

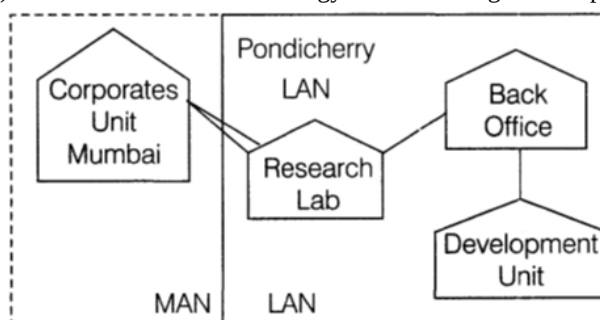(ii) **(b)** Switch/Hub
   Explanation:
   Switch/Hub

(iii) **(d)** Optical fibre
   Explanation:
   Optical fibre

(iv) An effective method/technology for connecting the company's offices-unit located in Mumbai is dial-up or broadband.

Section E

35. i. 200.9
   ii. Swat
   iii. SHUCHI
   iv. !!!!! Study is important
   v. 3234.3

36. i. It displays the names of columns of the Dataframe.
   ii. It will display all columns except the last 5 columns.
   iii. It displays all columns with row index 2 to 7.

iv. It will display entire dataframe with all rows and columns.

v. It will display all rows except the last 4 four rows.

37.
```python
import matplotlib.pyplot as plt

years = [2018, 2019, 2020, 2021]
participants = [150, 180, 210, 250]

plt.bar(years, participants, color='blue')
plt.xlabel('Year')
plt.ylabel('Participants')
plt.title('Growth in Participants Over the Years')
plt.show()
```

OR

```python
import numpy as np
import matplotlib.pyplot as plt
N = 5
boys = (22, 30, 35, 35, 26)
girls = (25, 32, 30, 35, 29)
boyStd = (4, 3, 4, 1, 5)
girlStd = (3, 5, 2, 3, 3)
ind = np.arange(N)
width = 0.35
p1 = plt.bar(ind, boys, width, yerr=boyStd, color='blue')
p2 = plt.bar(ind, girls, width,
bottom=girls, yerr=girlStd, color='green')
plt.ylabel('Scores')
plt.xlabel('Groups')
plt.title('Scores by group\n' + 'and gender')
plt.xticks(ind, ('G1', 'G2', 'G3', 'G4', 'G5'))
plt.yticks(np.arange(0, 81, 10))
plt.legend((p1[0], p2[0]), ('Boys', 'Girls'))
plt.show()
```