CBSE Class 12 Informatics Practises 2026 Question Paper

Time Allowed :3 Hours	Maximum Marks :70	Total Questions :37

General Instructions

1. All questions are compulsory.
2. The examination paper contains 5 sections - Section A to Section E.
3. Section A consists of 21 questions (1 to 21). Each question carries 1 mark.
4. Section B consists of 7 questions (22 to 28). Each question carries 2 marks.
5. Section C consists of 4 questions (29 to 32). Each question carries 3 marks.
6. Section D consists of 2 questions (33 to 34). Each question carries 4 mark.
7. Section E consists of 3 questions (35 to 37). Each question carries 5 marks.
8. Internal choice have been provided in some questions. Attempt only one of the choices in such questions.
9. All programming questions are to be answered using Python language only.
10. In case of MCQ, text of the correct answer should also be written.

Section A

1. State whether the following statement is True or False :
In Pandas Series, the Positional index can be a string or an integer.

(A) True
(B) False

---

2. We can add a new row to a DataFrame DF using the _____ method.

(A) DF.add()
(B) DF.loc[]
(C) DF.loc()
(D) DF.addloc[]

---

3. Naveen discarded various types of waste material without realizing that e-waste contains harmful substances that could pollute the environment. He wants to know which of the following will be considered as e-waste ?

(A) Plastic Bottle
(B) Broken Smartphone

(C) Aluminium Foil
(D) Banana Peel

---

4. In which scenario is a bar chart preferred over a line chart ?

(A) To visualise monthly temperature trends over a year.
(B) To compare the number of students in different classes.
(C) To show stock price movements over time.
(D) To analyse trends in website traffic over days.

---

5. Which of the following network topology uses a central cable (backbone) to connect all devices ?

(A) Mesh
(B) Star
(C) Tree
(D) Bus

---

6. State whether the following statement is True or False :
In SQL, an aggregate function returns multiple values for each column on which it is applied.

(A) True
(B) False

---

7. Rohini has developed a new kind of water purifier that uses a unique filtration method. Which type of Intellectual Property Right should she apply to protect her invention ?

(A) Trademark
(B) Copyright
(C) Patent
(D) Both Copyright & Trademark

---

8. Aditya is working on a DataFrame named df. He has written the statement :
print(df.loc['S2'])
What will the above statement do ?

(A) Display the data of the row having label 'S2'.
(B) Display the columns of the DataFrame.

(C) Display the data type of the column having label 'S2'.
(D) Display the index numbers of the DataFrame.

---

9. What will be the result of the following SQL command ?
SELECT LENGTH ('Data Base') ;
(Note : There is single space between the words Data and Base.)

(A) 7
(B) 8
(C) 9
(D) Error

---

10. Which of the following is a key feature of a Static Web Page ?

(A) Its content updates very frequently.
(B) It displays different content to different users.
(C) It loads slower than a Dynamic Web Page.
(D) It shows the same content unless the code is manually updated.

---

11. Which of the following is the correct expanded form of DML ?

(A) Device Management Language
(B) Device Manipulation Language
(C) Data Management Language
(D) Data Manipulation Language

---

12. CSV stands for _____ Separated Values.

(A) Colon
(B) CTRL
(C) Comma
(D) Caret

---

13. Which of the following is an example of maintaining good net etiquette ?

(A) Spamming emails or messages to strangers.
(B) Ignoring other's opinions in online discussions.
(C) Not using copyrighted materials without permission of the owner.
(D) Sharing someone's private information publicly.

14. In the context of creating a Pandas Series from a dictionary, which of the following statement is correct ?

(A) The values of the dictionary become the indices of the Series.
(B) The keys of the dictionary become the values of the Series.
(C) The keys of the dictionary become the indices of the Series.
(D) The Series will have default integer indices starting from 0, ignoring the dictionary keys.

---

15. In Pandas, when extracting a portion of a Series ser1 using ser1[start:end] with positional indices start and end, which of the following statements is true ?

(A) The element at the end index is included in the output.
(B) The element at the end index is excluded from the output.
(C) The elements at both the start and end indices are excluded from the output.
(D) The element at the start index is excluded from the output.

---

16. Nisha is using an Android app to make a voice call over the internet to her friend in another country. Which protocol is being used in this case ?

(A) Chat
(B) VoIP
(C) Email
(D) TV

---

17. State whether the following statement is True or False :
The INSTR(string1, string2) function in SQL returns 0 if string2 is not present as a substring in string1.

(A) True
(B) False

---

18. In a Pandas DataFrame, which value for axis will be used to delete a column ?

(A) **axis = -1**
(B) **axis = 0**
(C) **axis = 1**
(D) **axis = 2**

---

19. What will be the result of the following SQL command ?
SELECT ROUND(15.678, 2);

(A) **15.00**
(B) **15.67**
(C) **15.68**
(D) **16.00**

Comprehension for Q. 20 and Q. 21:
Q. 20 and Q. 21 are Assertion (A) and Reason (R) Type questions. Choose the correct option as :
(A) **Both (A) and (R) are True, and (R) correctly explains (A).**
(B) **Both (A) and (R) are True, but (R) does not correctly explain (A).**
(C) **(A) is True, but (R) is False.**
(D) **(A) is False, but (R) is True.**

20. Assertion (A) : Pandas DataFrame can store values of multiple data types in multiple Columns.
Reason (R) : DataFrames are implemented using 2D arrays, which allows only numeric values.

---

21. Assertion (A) : The output of the SQL query SELECT COUNT (name) FROM students; will differ from the output of SELECT COUNT (*) FROM students; if there are some NULL values in the name column.
Reason (R) : COUNT(column_name) returns the count of NON NULL values in that column, whereas COUNT (*) returns the number of records in the table.

Section B

22(a). List any two characteristics of Pandas library in Python.

22(b). Briefly explain the purpose of Boolean Indexing with respect to DataFrames. Support your answer with a suitable example.

23(i). Anjana had created a website using free design elements sourced from different creators online. She then published the site for public access but did not mention the source of the design elements used. Identify one possible violation of IPR in this situation.

23(ii). Name any two licensing models that allow legal reuse of digital creative work with conditions.

24a. Define the following terms with respect to RDBMS: Domain

---

24b. Define the following terms with respect to RDBMS: Tuple

25(a). Explain the role of the following network devices in a network :
(I) Modem
(II) Gateway

25(b). Differentiate between add-ons and plug-ins in a web browser.

---

26. Write SQL queries to perform the following :
(I) Display the month (in numeric form) of the date '2026-01-01'.
(II) Display only the year part from the date '2026-01-01'.

27(a). What is data protection ?

27(b). Mention any two precautionary measures one can take to avoid the risk of cybercrime.

28(a). Niharika wants to create a Pandas Series using a NumPy array with three elements 'a', 'b', and 'c', and assign custom indexes 'first', 'second' and 'third'. Help her complete the code below.

```
import pandas as pd
import _____ as np
arr = np._____ (['a', 'b' , 'c'])
s = pd._____ (arr, _____ =['first','second','third'])
print(s)
```

28(b). Write the output of the following code :

```
import pandas as pd
s1 = pd.Series([1, 2, 3], index = ['a','b','c'])
s2 = pd.Series([4, 5, 6], index = ['b','c','d'])
print(s1 + s2)
```

Section C

29.

Mandeep received an email stating he won a lottery though he had never participated in any such event. He was asked to provide bank details to process the amount. Mandeep provided the required details but within next few minutes One lakh was debited from his account.

Answer the following questions based on the given case study :

29(i). Mandeep is the victim of which type of cybercrime ?

29(ii). Other than email, mention any two common methods through which this type of cybercrime is being committed these days.

29(iii). Name one law that safeguards the rights of Internet users in India.

30(a). Write a Python program to create and display a Pandas Series as shown below :

```
July  31
Aug   31
Sept  30
Oct   31
```

The index labels are the names of the months - July, Aug, Sept, Oct.
The corresponding scalar values are the number of days in these respective months - 31, 31, 30, 31.

30(b). A CSV file named customer.csv contains records of customers. The first row of the file represents the header. Sample data from the file is shown below :
Name, Age, City
Rudra, 17, Kolkata
Divya, 19, Dehradun
Nabeel, 22, Lucknow
Write a Python program to import data from the CSV file into a Pandas DataFrame named DF and display the last two rows.

31(i). Write an SQL statement to create a table named PRODUCTS with the following specifications :

Column Name	Data Type	Key
PID	Integer	Primary Key
PName	Varchar of size 30	
PCat	Char of size 15	
Price	Decimal Number	

31(ii). Write an SQL query to increase the price of all items by 100, whose product category is Grocery, in the table PRODUCTS.

Comprehension for Q. 32(a):
Consider the following tables :

TID	TName	Experience	City
1	Kartik	5	Bhopal
2	Shahnaz	6	Nagpur
3	Rajendra	7	Delhi
4	Tanvi	4	Bhopal
5	Alam	9	Delhi

SID	SubName	TID
101	Physics	1
102	Chemistry	2
103	Mathematics	3
104	Informatics Practices	4
105	Computer Science	5

32(a)(I). Write appropriate SQL query to : Delete the record of the subject whose TID is equal to 4.

32(a)(II). Write appropriate SQL query to : Display the names of teachers who have more than 5 years of experience and who stay in Nagpur.

32(a)(III). Write appropriate SQL query to : Display subject names along with their teacher names.

Comprehension for Q. 32(b):
Consider the table LIBRARY as given below.

BookId	Title	Genre	Price
101	Python Basics	Technology	278
201	The Silent Patient	Fiction	340
301	Data Science	Technology	291
401	Oceans	Marine Life	NULL

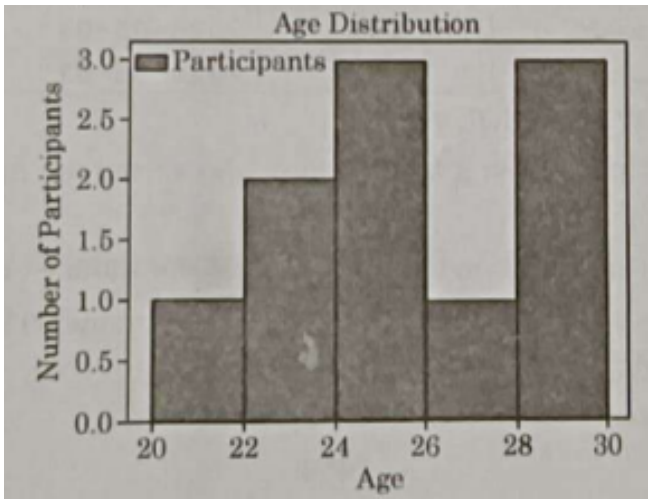
32(b)(I). Which attribute(s) can be considered as the Candidate keys(s) ? Justify your answer.

32(b)(II). Write an SQL query to insert a new record with the following values : BookId : 501, Title : AI for ALL, Genre : Technology, Price : 589.

32(b)(III). Write an SQL query to add a new column Author that is a character data type of size 20.

Section D

33. Ms. Anjali, a data analyst, has been assigned the task of creating a histogram to display the age distribution of ten participants in a workshop. She has been provided with the following list of their ages:
Ages = [22, 25, 24, 28, 30, 24, 29, 27, 21, 23]
She has started writing a Python program for it. However, the code is incomplete. Help her complete the program by filling in the missing parts, so that the histogram as shown below is displayed.




```
import matplotlib.pyplot as plt
Ages = [22, 25, 24, 28, 30, 24, 29, 27, 21, 23]
binsize = [20, 22, 24, 26, 28, 30]
plt._______(Ages, bins=binsize, edgecolor = 'black', label = 'Participants') # Statement-1
_______.xlabel('Age') # Statement-2
plt.ylabel('Number of Participants')
plt.title("Age Distribution")
plt._______# Statement-3
_______# Statement-4
```

33.I. Write the suitable code for the blank space in the line marked as Statement-1 which plots the histogram.

(A) plot
(B) bar
(C) hist
(D) scatter

33.II. Fill in the blank in Statement-2 to use the correct alias of the required module to set the label on x axis.

33.III. Fill in the blank in Statement-3 with the correct Python code to display the legend on the graph.

33.IV. Fill in the blank in Statement-4 with the appropriate Python code to display the graph.

34(a). Shalini, who works as a database designer in the hotel industry, has created a table named Guest to keep track of guest details as shown below:
Table : Guest

GuestID	GuestName	RoomNumber	CheckInDate	Charges
G101	Harish	101	2025-04-03	3000
G102	Sunita	101	2025-04-03	3000
G103	Ramesh	102	2025-05-04	5000
G104	Bhumika	103	2025-06-02	3500

Write a suitable SQL query for the following:

34(a).I. Display last 3 characters of guest name in upper case.

34(a).II. Display the name of the guest along with the day name of check-in date.

34(a).III. Display the remainder when charges are divided by 1000.

34(a).IV. Extract and display three characters, starting from the second character, of each guest name.

34(b). Consider the following table and write the output of the following SQL Queries:

Table : ORDERS

ORDERID	CUSTOMERNAME	TOTALAMOUNT	DISCOUNT	ORDERDATE
101	Hemant	5000	10	2024-03-01
102	Neha	7000	15	NULL
103	Keshav	3000	5	2024-01-20
104	Sandhya	4500	NULL	2023-12-25

34(b).I. SELECT CUSTOMERNAME FROM ORDERS WHERE DISCOUNT IS NOT NULL;

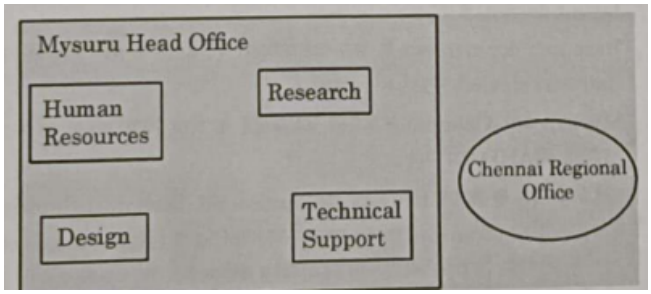
34(b).II. SELECT CUSTOMERNAME, DISCOUNT FROM ORDERS WHERE DISCOUNT BETWEEN 5 AND 10;

34(b).III. SELECT MONTHNAME(ORDERDATE) FROM ORDERS WHERE ORDERDATE IS NOT NULL;

34(b).IV. SELECT ORDERID, DAY(ORDERDATE) FROM ORDERS;

Section E

35. My Solutions Pvt. Ltd. is a reputed software development and IT consulting firm. The company's head office is located in Mysuru, and it has a regional office in Chennai. The Mysuru office comprises four departments: Human Resources, Research, Design and Technical Support.



The distance between these departments and between Mysuru and Chennai are as follows:

Human Resources to Research	55 metres
Human Resources to Design	75 metres
Human Resources to Technical Support	140 metres
Research to Design	40 metres
Research to Technical Support	80 metres
Design to Technical Support	60 metres
Mysuru Office to Chennai Office	350 kilometres

The number of computers in each department/office are as follows:

Human Resources	30
Research	80
Design	50
Technical Support	20
Chennai Office	35

35.I. Identify the most suitable department to install the main server in the Mysuru office. Justify your answer with a valid reason.

35.II. Create a cable layout design to establish Wired network connectivity between the departments in the Mysuru Office.

35.III. Suggest the appropriate network device to connect multiple computers within the Research department.

35.IV. What type of network (LAN, MAN, WAN) would best connect the Mysuru and Chennai office ?

35.V. Which device should be used if the signal strength weakens while transmitting data between the Human Resources and Technical Support departments due to the long distance between them ?

---

36. Consider the DataFrame Scholarship shown below:

	Name	Course	Amount
0	Ananya	B.Sc.	62000
1	Karan	B.Tech	67000
2	Simran	MCA	64000
3	Rahul	BCA	70000
4	Priya	BA	69000

36.I. Write Python code to create and display the given DataFrame using the Dictionary of Series method.

36.II. Rename row indexes to ['a', 'b', 'c', 'd', 'e'].

36.III. Write Python statement to remove the last row of the given DataFrame.

37(a).I. Write suitable SQL query to: Display only the date part from the date/time expression '2026-01-01 10:10:10'.

37(a).II. Write suitable SQL query to: Convert all customer names from the Cust_Name column to lowercase in the Customer table.

37(a).III. Write suitable SQL query to: Extract the first 4 characters from the City_Name column in Location table.

37(a).IV. Write suitable SQL query to: Display the name of the city from the CITY column in EVENT table, after removing leading spaces.

37(a).V. Write suitable SQL query to: To find the average salary from Salary column in Employees table.

37(b).I. Write suitable SQL query for the following: To display the value of 17^2.

37(b).II. Write suitable SQL query for the following: To display the day part of the dates in the Hire_Date column of the Employee table.

37(b).III. Write suitable SQL query for the following: To display the maximum value of the Bill_Amount column in the Bill table.

37(b).IV. Write suitable SQL query for the following: To remove leading and trailing spaces from the Location column in the Branch table.

37(b).V. Write suitable SQL query for the following: To display total salary from tot_sal column in Employees table.
