PRINCE ACADEMY
OF HIGHER EDUCATION
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BOARD SAMPLE PAPER - II (2025-26)

Time : 03 : 00 Hours | **CLASS – XII (INFORMATIC PRACTICES)** | **M.M. : 70**

General Instructions :

1. 15- minute prior reading time allotted for Q-paper reading.
2. This question paper contains five sections, Section A to E.
3. All questions are compulsory.
4. Section A have 21 questions carrying 01 mark each.
5. Section B has 07 Very Short Answer type questions carrying 02 marks each.
6. Section C has 04 Short Answer type questions carrying 03 marks each.
7. Section D has 02 Long Answer type questions carrying 04 marks each.
8. Section E has 03 questions carrying 05 marks each.
9. All programming questions are to be answered using Python Language only.

SECTION- A (21×1 = 21)

1. Landline Telephone network is an example of_____.
   (a) LAN (b) WAN (c) MAN (d) Internet
2. Ishita, a Database Administrator, needs to display the Maximum pay of all workers from those departments which have more than Four employees. he is experiencing a problem while running the following query:
   SELECT DEPT, Maximum (PAY) FROM EMP ORDER BY DEPT HAVING COUNT ()>4;
   Which of the following is a correct query to perform the given task?
   (a) SELECT DEPT, max(*) FROM EMP WHERE COUNT(*) > 4 GROUP BY DEPT;
   (b)SELECT DEPT, Maximum (*) FROM EMP HAVING COUNT(*) > 4 GROUP BY DEPT;
   (c) SELECT DEPT, Max (PAY) FROM EMP GROUP BY DEPT HAVING COUNT(*)>4;
   (d) SELECT DEPT, maximum (PAY) FROM EMP GROUP BY DEPT WHERE COUNT(*) > 4;
3. Slicing can be used to extract a specific portion from a Pandas Series.
   (a) True (b) False (c) None of these (d) Don't no
4. In SQL, MID () function is equivalent to:
   (a) LEN () (b) TRIM() (c) SUBSTR() (d) None of these
5. The purpose of WHERE clause in a SQL statement is to:
   (a) Create a table (b) Filter rows based on a specific condition
   (c) Specify the columns to be displayed (d) Sort the result based on a column
6. Identify the networking device responsible for routing data packets based on their destination addresses.
   (a) Modem (b) Hub (c) Repeater (d) Router

7. Identify the SQL command used to delete a table from a relational database.
   (a) DROP TABLE (b) REMOVE TABLE (c) DELETE TABLE (d) ERASE TABLE
8. e-waste refers to:
   (a) Software that has become obsolete (b) Data that has been deleted from a storage device
   (c) Viruses that infect computers (d) Electronic devices that are no longer in use
9. Which of the following Python statements can be used to select a column column_name from a Data Frame df ?
   (a) df.getcolumn('column_name') (b) df['column_name']
   (c) df.select('column_name') (d) df(column_name)
10. By default, the plot() function of Matplotlib draws a ..... plot.
   (a) histogram (b) column (c) bar (d) line
11. State whether the following statement is True or False:
   In SQL, the HAVING clause is used to apply filter on groups formed by the GROUP BY clause.
12. Which of the following Python statements is used to import data from a CSV file into a Pandas Data Frame (Note: pd is an alias for pandas)?
   (a) pd.open_csv('filename.csv') (b) pd.read_csv('filename.csv')
   (c) pd.load_csv('filename.csv') (d) pd.import_csv('filename.csv')
13. What is plagiarism?
   (a) Using copyrighted material without giving proper acknowledgement to the source
   (b) Downloading illegal software.
   (c) Spreading misinformation online.
   (d) Hacking into computer systems.
14. Fill in the Blank
   The COUNT(*) function provides the total number of ..... relation (table) in a relational database. within a
   (a) Columns (b) Unique values (c) Not-null values (d) Rows
15. In which of the network topologies do all devices connect to a central point, such as a switch or hub?
   (a) Star (b) Bus (c) Tree (d) Mesh
16. In a Pandas DataFrame, if the tail () function is used without specifying the optional argument indicating the number of rows to display, what is the default number of rows displayed, considering the DataFrame has 10 entries?
   (a) 0 (b) 1 (c) 4 (d) 5
17. Identify the type of cybercrime that involves sending fraudulent emails to deceive individuals into revealing sensitive information.
   (a) Hacking (b) Phishing (c) Cyberbullying (d) Cyberstalking
18. S in CSV stands for:
   (a) separated (b) static (c) statement (d) None of these
19. While creating a Series using a dictionary, the keys of the dictionary become:
   (a) Values of the Series (b) Indices of the Series
   (c) Data type of the Series (d) Name of the Series

Directions Q-20 and Q-21 are Assertion (A) and Reason (R) Type questions. Choose the correct option as:

(A) Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of Assertion (A)

(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)

(C) Assertion (A) is True, but Reason (R) is False

(D) Assertion (A) is False, but Reason (R) is True

20. **Assertion (A):** We can add a new column in an existing Data Frame.
Reason (R): Data Frames are size mutable.

21. **Assertion (A):** In SQL, INSERT INTO is a Data Definition Language (DDL) Command.
Reason (R): DDL commands are used to create, modify, or remove database structures, such as tables.

Section- B (7×2=14)

22. A. What is a Series in Python Pandas? Also, give a suitable example.

OR

B. Mention one use for each of the following libraries with an example:

*** Pandas** ***Matplotlib**

23. What are intellectual property rights (IPR), and why are they important in the digital world?

24. Consider the string: "**Programming Management System**". Write suitable SQL queries for the following:

I. To extract and display "Manage" from the string.

II. Display the position of the first occurrence of "System" in the given string.

25. A. Explain the terms: Hub, Switch and Router.

OR

B. Explain the concept of browser cookies and mention one advantage of using them.

26. Define the term Primary Key in a database. Write a query to add primary key on 'rollno' column in 'STUDENT' table.

27. Mention two health concerns associated with excessive use of Digital Devices.

28. A. Vishal is writing a Python program to create a DataFrame using a list of dictionaries. However, his code contains some mistakes. Identify the errors, rewrite the correct code, and underline the corrections made.

```
import Pandas as pd
Data =[{'Name': 'Rakshit', 'Age': 25},
{'Name': 'Paul', 'Age': 30},
{'Name': 'Ayesha", 'Age': 28}]
df= pd.dataframe (data)
Print (df)
```

OR

B. Complete the given Python code to get the required output (ignore the dtype attribute) as Output:

Rohit	Assam
Utsav	Delhi
Manoj	Mumbai

Code:

```
import as pd
data = ['Assam', '_____ ','Mumbai']
name= ['Rohit', 'Utsav', 'Manoj']
S = pd.Series( _____, index=_____)
print(S)
```

Section- C (5×3=15)

29. Avani's family is replacing their old computer with a new one. They decide to throw the old computer in a nearby empty field.

I. Explain any one potential environmental hazard associated with improper e-waste disposal.

II. Suggest one responsible way to Avani's family for proper disposal of their old computer.

III. Describe the importance of recycling in e-waste management.

30. A. Write a Python program to create the following DataFrame using a list of dictionaries.

	Product	Price
0	Laptop	60000
1	Desktop	45000
2	Monitor	15000
3	Tablet	30000

OR

B. Write a Python Program to create a Pandas Series as shown below using a numpy (ndarray). Note that the left column indicates the indices and the right column displays the data.

Manisha	Cricket
Bhavya	Hockey
Kashish	Chess

31. I. Write an SQL statement to create a table named STUDENTS, with the following specifications:

Column Name	Data Type	Key
Employee_Id	Numeric	Primary Key
F_Name	Varchar (13)	
L_Name	Varchar (18)	
Date_of_join	Date	
Average	Float(8,2)	

II. Write SQL Query to insert the following data in the Students Table1,Navya ,Singh, 2025-06-20, 75.5

32. Consider the following tables:

Table 1:

EMP which stores Employee ID (EMP_ID), Employee Name (EMP_NAME), Employee City (EMP_CITY)

Table 2:

PAY which stores Employee ID (EMP ID), Department (DEPARTMENT), Designation (DESIGNATION), and Salary (SALARY) for various employees.

Note: Attribute names are written with in brackets.

Table: EMP

EMP_ID	EMP_NAME	EMP_CITY
1	ADHINAV	AGRA
2	KABIR	FARIDABAD
3	ESHA	NOIDA
4	PAUL	EOUL
5	VICTORIA	LONDAN

Table: PAY

EMP_ID	DEPARTMENT	DEIGNATION	SALARY
1	SALES	MANAGER	74000
2	SALES	ASSOCIATE	50000
3	ENGINEERING	MANAGER	96000
4	ENGINEERING	ENGINEER	80000
5	MARKETING	MANAGER	64000

Write appropriate SQL queries for the following:

I. Display department-wise average Salary.

II. List all designations in the decreasing order of Salary.

III. Display employee name along with their corresponding departments.

SECTION-D (2×4 =8)

33. (A) Rahul, who works as a database designer, has developed a database for a bookshop. This database includes a table BOOK whose column (attribute) names are mentioned below:

BCODE: Shows the unique code for each book.

TITLE: Indicates the book's title.

AUTHOR: Specifies the author's name. PRICE: Lists the cost of the book.

Table: BOOK

BCODE	TITLE	AUTHOR	PRICE
B001	MID NIGHT'S Show	SALMANRUSHDIE	500
B002	THETHUGOFSMALLTHINGS	ARUNDHATIROY	450
B003	ALITTLEBOY	VIKRAMSETH	600
B004	THEWHITELION	ARVINDADIGA	399
B005	TRAINTOBUSHAN	KHUSHWANTSINGH	350

I. Write SQL query to display book titles in lowercase.

II. Write SQL query to display the highest price among the books.

III. Write SQL query to display the number of characters in each book title.

IV. Write SQL query to display the Book Code and Price sorted by Price in descending order.

OR

(B) Dr. Kavita has created a database for a hospital's pharmacy. The database includes a table named MEDICINE whose column (attribute) names are mentioned below:

MID: Shows the unique code for each medicine. MED_NAME: Specifies the medicine name

SUPP_CITY: Specifies the city where the supplier is located.

STOCK: Indicates the quantity of medicine available.

DEL_DATE: Specifies the date when the medicine was delivered.

Table: MEDICINE

MID	MED_NAME	SUPP_CITY	STOCK	DEL_DATE
M01	PARACETAMOL	MUMBAI	200	6/15/2025
M02	AMOXICILLIN	KOLKATA	50	3/21/2025
M03	COUGHSYRUP	BENGALURU	120	2/10/2025
M04	INSULIN	CHENNAI	35	1/25/2025
M05	IBUPROFEN	AHMEDABAD	130	8/5/2025

Write the output of the following SQL Queries.

I. Select LENGTH(MED_NAME) from MEDICINE where STOCK>100;

II. Select MED_NAME from MEDICINE where month (DEL_DATE) = 8;

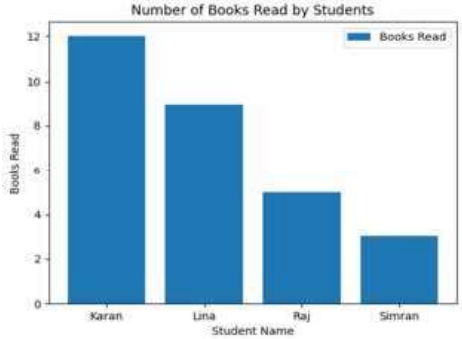
III. Select MED_NAME from MEDICINE where STOCK between 120 and 200;

IV. Select MAX(DEL_DATE) from MEDICINE;

34. During a practical exam, a student Ronak has to fill in the blanks in a Python program that generates a bar chart. This bar chart represents the number of books read by four students in one month.

Student Name	Book Read
Karan	12
Lina	9
Raj	5
Simran	3

Help Ronak to complete the code.



import _____asplt#Statement-1

students = ['Karan', 'Lina', 'Raj', 'Simran']

books_read = [12,9,5,3]

plt.bar(students,_____,label='BooksRead')#Statement-2

plt.xlabel('Student Name')

plt._____('BooksRead')#Statement-3

plt. legend()

plt.title('_____')#Statement-4

plt.show()

I. Write the suitable code for the import statement in the blank space in the line marked as Statement-1.

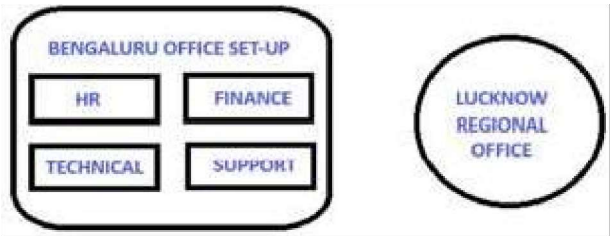
II. Refer to the graph shown above and fill in the blank in Statement-2 with suitable Python code.

III. Fill in the blank in Statement-3 with the name of the function to set the label on the y-axis.

IV. Refer the graph shown above and fill the blank in Statement-4 with suitable Chart Title.

SECTION- E (5×3 =15)

35. INFOTECH Pvt. Ltd., a multinational technology company, is looking to establish its Indian Head Office in Bengaluru, and a regional office branch in Lucknow. The Bengaluru head office will be organized into four departments: HR, FINANCE, TECHNICAL, AND SUPPORT. As a network engineer, you have to propose solutions for various queries listed from I to V.



The shortest distances between the departments/offices are as follows:

HR TOFINANCE	65M
HR TOTECHNICAL	80M
HR TOSUPPORT	70M
FINANCETOTECHNICAL	60M
FINANCETOSUPPORT	75M
TECHNICALTOSUPPORT	50M
BENGALURUOFFICETOLUCKNOW	1900KM

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

HR	175
FINANCE	35
TECHNICAL	50
SUPPORT	15
LUCKNOWOFFICE	40

I. Suggest the most suitable department in the Bengaluru Office Setup, to install the server. Also, give a reason to justify your suggested location.

II. Draw a suitable cable layout of wired network connectivity between the departments in the Bengaluru Office.

III. Which networking device would you suggest the company to purchase to interconnect all the computers within a department in Bengaluru Office?

IV The company is considering establishing a network connection between its Bengaluru Head Office and Lucknow regional office. Which type of network-LAN, MAN, or WAN-will be created? Justify your answer.

V. The company plans to develop an interactive website that will enable its employees to monitor their performance after login. Would you recommend a static or dynamic website, and why?

36. Consider the Data Frame df shown below.

	Movie ID	Title	Year	Rating
0	1	LAGAAN	2001	8.4
1	2	TAAREZAMEENPAR	2007	8.5
2	3	3IDIOTS	2009	8.4
3	4	DANGAL	2016	8.4
4	5	ANDHADHUN	2018	8.3

Write Python statements for the Data Frame df to:

I. Print the first three rows of the Data Frame df.

II. Display titles of all the movies.

III. Remove the column rating.

IV. Display the data of the 'Title' column from indexes 2 to 4 (both included)

V. Rename the column name 'Title' to 'Name'.

37. (A) Write suitable SQL query for the following:

I. To display the average score from the mock_ result column in the Exams table

II. To display the last three characters of the registration_ number column in the Vehicles table. (Note: The registration numbers are stored in the format RJ-01-AN-1234)

III. To display the data from the column 'username' in the Users table, after eliminating any leading and trailing spaces.

IV. To display the maximum value in the 'salary' column of the Employees table.

V. To determine the count of rows in the Suppliers table.

OR

(B) Write suitable SQL query for the following:

I. Round the value of pi (3.14159) to three decimal places.

II. Calculate the remainder when 17 is divided by 3.

III. Display the number of characters in the word 'Rajasthan'.

IV. Display the first 4 characters from the word 'Informatics Practices'.

V Display details from 'email' column in the 'Students' table, after removing any leading and trailing spaces.

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