केंद्रीय विद्यालय संगठन,अहमदाबाद संभाग

Kendriya Vidyalaya Sangathan, Ahmedabad Region

कक्षा बारहवीं प्रीबोर्ड- II परीक्षा 2025-26

Pre Board II Examination 2025-26 for Class XII

Subject: Informatics Practices (065) (SET A)

TIME: 03 HOURS **M.M.: 70**

General Instructions:

- All questions are compulsory.
- The examination paper contains five sections, from Section A to Section E.
- Section A consists of 21 questions (1 to 21). Each question carries 1 Mark.
- Section B consists of 7 questions (22 to 28). Each question carries 2 Marks.
- Section C consists of 4 questions (29 to 32). Each question carries 3 Marks.
- Section D consists of 2 questions (33 to 34). Each question carries 4 Marks.
- Section E consists of 3 questions (35 to 37). Each question carries 5 Marks.
- There is no overall choice. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions.
- All programming questions are to be answered using Python Language only.
- In case of MCQ, text of the correct answer should also be written.

SECTION - A

1 Given: 1

```
import pandas as pd
s = pd.Series({'a':100, 'b':200, 'c':300})
print(s[1])
```

What will be the output?

a) 100 b) 200 c) 'b' d) Error

2 The school database needs to remove the record of a student who has left school. Which SQL command should be used? 1

a) REMOVE FROM STUDENT WHERE RollNo=105;
b) DELETE FROM STUDENT WHERE RollNo=105;
c) DROP STUDENT WHERE RollNo=105;
d) ERASE FROM STUDENT WHERE RollNo=105;

3 A company uses a **fiber-optic network** between two buildings located far apart. The signal weakens midway, so they install a device to **boost the signal strength** without changing its content. Which device is it? 1

a) Router b) Gateway c) Repeater d) Modem

4 Which SQL command is used to add a new column in a table? 1

a) INSERT COLUMN b) UPDATE TABLE
c) ALTER TABLE d) MODIFY TABLE

5 Which of the following best describes **responsible e-waste management**? 1
a) Using non-rechargeable batteries
b) Disposing e-waste with regular garbage
c) Donating or recycling electronic items safely
d) Dumping old devices in landfills

6 import pandas as pd 1
df = pd.DataFrame({'A':[1,2,3], 'B':[4,5,6]})
What is the result of df.iloc[1,0]?
a) 2 b) 4 c) 1 d) 5

7 You have two lists: 1
subjects = ['Math', 'Science', 'English']
marks = [88, 92, 80]
Which command will correctly create a line chart?
a) plt.pie(subjects, marks)
b) plt.line(marks, labels=subjects)
c) plt.plot(marks, subjects)
d) plt.barh(marks, subjects)

8 Which of these clauses **must** appear before HAVING in an SQL SELECT statement? 1
a) WHERE b) GROUP BY
c) ORDER BY d) DISTINCT

9 Consider the following code segment: 1
```
import pandas as pd
df = pd.read_csv("student.csv")
print(df.head())
```

The file **student.csv** contains 100 records.
Which of the following statements is correct about the output?
a) It prints the first 10 rows of the DataFrame.
b) It prints the last 5 rows of the DataFrame.
c) It prints the first 5 rows of the DataFrame.
d) It prints the entire DataFrame.

10 Which of the following statements about **Free and Open Source Software (FOSS)** is correct? 1
a) FOSS allows use but not modification of code.
b) FOSS is free only for educational institutions.
c) FOSS allows users to use, modify, and distribute software freely.
d) FOSS cannot be used for commercial purposes.

11 A company's table **EMPLOYEE** has the columns DEPT and SALARY. 1
To find the average salary **department-wise**, which query is correct?
a) SELECT AVG(SALARY), DEPT FROM EMPLOYEE ORDER BY DEPT;
b) SELECT AVG(SALARY) GROUP BY DEPT;
c) SELECT DEPT, AVG(SALARY) FROM EMPLOYEE GROUP BY DEPT;
d) SELECT AVG(SALARY) FROM EMPLOYEE ORDER BY DEPT;

12 Which topology is **least expensive** to install for small networks? 1
a) Mesh b) Bus c) Tree d) Star

13 Which of the following statements correctly creates a DataFrame? 1
a) pd.DataFrame([10,20,30])
b) pd.DataFrame({'Name':['A','B'],'Marks':[90,85]})
c) pd.DataFrame('A','B','C')
d) pd.DataFrame(Name,Marks)

14 A student copies an article from the Internet and submits it as her own work in a project report. This act is an example of: 1
a) Data Protection b) Cyber Hacking
c) Plagiarism d) Licensing Violation

15 1
```
import pandas as pd
s = pd.Series([10, 20, 30])
print(s + 5)
```
What is the output of the above code?
a) Error b) [15, 25, 35]
c) [10, 20, 30, 5] d) [5, 5, 5]

16 Consider the SQL query: 1
SELECT CONCAT(FNAME, ' ', LNAME) FROM STUDENT;
If FNAME = 'Riya' and LNAME = 'Sharma', the result will be:
a) RiyaSharma b) Riya-Sharma
c) Riya Sharma d) Riya_Sharma

17 Which of the following is **not a valid way** to select a column? 1
a) df['Age'] b) df.Age c) df(Age) d) Both b and c

18 The command 1
plt.bar(['X','Y','Z'], [10,20,15], width=0.3)
changes which aspect of the bar chart?
a) The spacing between bars b) The thickness of each bar
c) The color of bars d) The orientation of bars

19 If your home Wi-Fi connects laptops, phones, and smart TVs within the same building, what type of network does it form?
a) PAN b) LAN c) MAN d) WAN

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):** The read_csv() function of pandas can be used to import data from a CSV file into a DataFrame.
Reason (R): The read_csv() function automatically treats the first row of a CSV file as column headers unless specified otherwise.

21 **Assertion (A):** The DISTINCT keyword is used to eliminate duplicate rows from query results.
Reason (R): DISTINCT affects only numeric columns, not text columns.

SECTION - B

22 Consider the given Series object Subject: 2

Index	Marks
English	75
Hindi	78
Math	82
Science	88

Write a program in python pandas to create this series using a dictionary.

OR

Write a program to create a series object using a dictionary that stores the number of Kendriya Vidyalayas in each city of cities of your state.
Note: Assume some cities like AGRA, JHANSI, MATHURA, NOIDA having 4, 3, 5, 4 KVs respectively and pandas library has been imported as mypandas.

23 List any two health hazards related to excessive use of Technology 2

24 Write SQL queries to perform the following: 2
Extract the **first 5 characters** from the string 'ArtificialIntelligence'.
Find the **position of the substring** "Science" in the string "DataScienceRocks".

25 Explain the terms Static and dynamic Web pages. 2

OR

What are cookies?

26 What will be the output of the following SQL queries? 2

(i) SELECT RIGHT ("CHANDRAYAN3", 4);
(ii) SELECT ROUND (76345.456,2);

27 What is E -Waste? List any two E-Waste management techniques? 2

OR

List any one Positive impact and negative impact of usage of technology

28 What will be the output of the following code? 2

```
import pandas as pd 2
M=[15,-10,56,39,-90,15]
p=pd.Series(M)
print(p[0])
print(p[[0,3,4]])
```

SECTION - C

29 Sohil works in a multinational IT firm. One day, he came to know that some mails were sent from his official mail account but he had not actually sent them. 3
Based on the given information, answer the following questions:
(i) Sohil is a victim of which type of cybercrime?
(ii) Write any two precautions that one should take to protect oneself from being the victim of cybercrime.
(iii) Should Sohil immediately change the password of his email account?

30 (A) Consider the given DataFrame 'health'. 3

	Diseasename	**Agent**
0	Common cold	Virus
1	Chickenpox	Virus

2	Cholera	Bacteria
3	Tuberculosis	Bacteria

Write suitable Python statements for the following:
(i) Remove the row containing details of disease named Tuberculosis.
(ii) Add a new disease named 'Malaria' caused by 'Protozoa'.
(iii) Display the last 2 rows.

OR

(B) Consider the given DataFrame 'result':

	Name	Percentile
0	Rohit	95
1	Mohit	76
2	Raman	98
3	Aditya	47

Write the suitable Python statements for the following:
(i) Add a new column 'Grade' to the dataframe having values A, B, A, C.
(ii) Add a new row where Name is 'Arti' with Percentile as 92 and Grade A.
(iii) Display the top 3 rows.

31 Aman, a librarian, wants to maintain a record of books in a library database. 2+
He decides to create a table named **BOOKS** with the following structure: 1

Column Name	Data Type	Constraint / Description
BookID	INT	Primary Key
Title	VARCHAR(50)	—
Author	VARCHAR(30)	—
Publisher	VARCHAR(30)	—
Price	DECIMAL(7,2)	—

(i) Write an SQL statement to create the above table named BOOKS.
(ii) Write an SQL statement to insert the following record into the BOOKS table: BookID: 201, Title: "The Alchemist", Author: "Paulo Coelho", Publisher: "HarperCollins", Price: 499.50

32 A school maintains two tables in its database: 3
Table: STUDENTS

StudentID	StudentName	Class	Marks
1	Aryan	10	85
2	Neha	10	92

3	Rohit	11	78
4	Simran	11	88
5	Priya	10	95

Table: CLASSES

ClassID	Class	ClassTeacher
101	10	Mr. Sharma
102	11	Ms. Verma

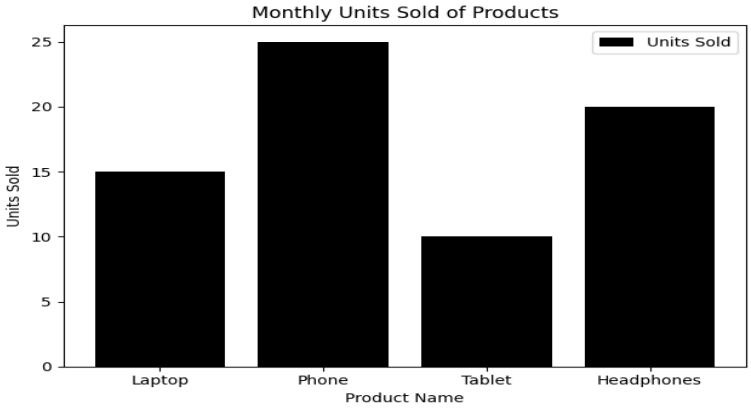
a) Write an SQL query to find the **total marks** and **average marks** of all students.
b) Write an SQL query to display **StudentName**, **Class**, and **ClassTeacher** for each student.
c) Write an SQL query to display **Class** and **total marks** obtained by students in each class.

SECTION – D

33 A manager wants to visualize the monthly sales of four products in his store using a bar chart. 1X4= 4

Data Table:

Product Name	Units Sold
Laptop	15
Phone	25
Tablet	10
Headphones	20




```
import matplotlib.pyplot as _____  # Statement-1
products = ['Laptop', 'Phone', 'Tablet', 'Headphones']
units_sold = [15, 25, 10, 20]
plt._____(products, units_sold, color='green')  # Statement-2
plt._____('Product Name')  # Statement-3
plt.ylabel('Units Sold')
plt.title('_____')  # Statement-4
plt.legend(['Units Sold'])
plt.show()
```

I. Statement-1: Fill in the alias used for matplotlib.pyplot.
II. Statement-2: Fill in the function used to create the bar chart.

III. Statement-3: Fill in the function used to label the x-axis.
IV. Statement-4: Fill in a suitable title for the chart.

34 Consider the following table: 4

Table : SALESMAN

Scode	Sname	Area	Qtysold	Dateofjoin
S001	Ravi	North	120	2015-10-01
S002	Sandeep	South	105	2012-08-01
S003	Sunil	NULL	68	2018-02-01
S004	Subh	West	280	2010-04-01
S005	Ankit	East	90	2018-10-01
S006	Raman	North	NULL	2019-12-01

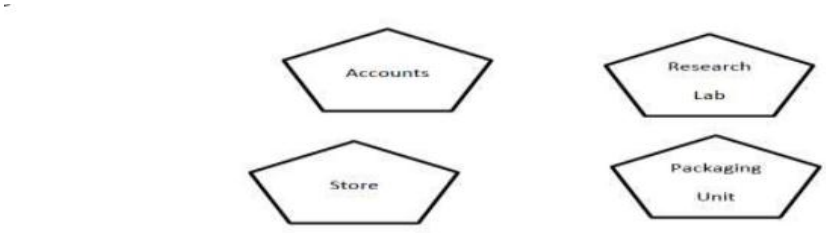
Predict the output for the following SQL queries:
(i) SELECT MAX(Qtysold), MIN(Qtysold) FROM SALESMAN;
(ii) SELECT COUNT (Area) FROM SALESMAN;
(iii) SELECT LENGTH (Sname) FROM SALESMAN WHERE MONTH(Dateofjoin)=10;
(iv) SELECT Sname FROM SALESMAN WHERE RIGHT(Scode,1)=5;

OR

Based on the given table SALESMAN write SQL queries to perform the following operations:
(i) Count the total number of salesman.
(ii) Display the maximum qtysold from each area.
(iii) Display the average qtysold from each area where number of salesman is more than 1.
(iv) Display all the records in ascending order of area.

SECTION - E

35 SHARMA Medicos Center has set up its new center in Delhi. It has four buildings as shown in the diagram 5 given below 5



Distance between various building are as follows:

Accounts to research Lab	55m
Accounts to store	150m
Store to packaging unit	160m
Packaging unit to research lab	60m
Accounts to packaging unit	125m
Store to research lab	180m

Number of Computers

Accounts	25
Research Lab	100
Store	15
Packaging Unit	60

As a network expert, provide the best possible answer for the following queries

a) Suggest a cable layout of connections between the buildings

b) Suggest the most suitable place (i.e. buildings) to house the server of this organization.

c) Suggest the placement of the following device with justification

i) Repeater ii) Hub/Switch

d) Suggest a device to prevent unauthorized access to or from the network.

e) The company is planning to link its head office situated in Delhi with the offices in hilly areas. Suggest a way to connect it economically.

36 A school maintains a record of students including their grade, marks, and extracurricular activities. The principal wants to analyze this data to identify high achievers and update student information. 5

Here's the current DataFrame:

Student_Name	Grade	Marks	Activity
Ankit Sharma	10	88	Football
Priya Jain	10	92	Music
Rohan Verma	9	85	Debate
Simran Kaur	10	78	Basketball
Aarav Singh	9	90	Science Club

Write python statement of following tasks:

a) Print the details of students who scored more than **85 marks**.
b) Add a new column "Attendance" with values [95, 98, 92, 88, 96].
c) Delete the "Activity" column from the DataFrame.
d) Rename the column "Marks" to "Score".
e) Display only the "Student_Name" and "Score" columns.

37 A university maintains tables Students, Courses, Enrollments, and Grades. 5

You are required to write SQL queries for the following tasks.

I. Concatenate First_Name and Last_Name columns from the Students table into a single column called Full_Name.

II. Count the total number of courses offered in the Courses table.

III. Display only the month and year of the Enrollment_Date column from the Enrollments table.

IV. Convert all values in the Course_Name column to uppercase from the Courses table.

V. Display the current year.

OR

Write suitable SQL query for the following:

I. Find the position of the letter 'i' in the Course_Name column of the Courses table.

II. Round the Grade column in the Grades table to the nearest integer.

III. Display the maximum Grade from the Grades table.

IV. Display the minimum Grade from the Grades table.

V. Calculate the total sum of the Credits column from the Courses table.