KENDRIYA VIDYALAYA SANGTHAN
JABALPUR REGION
FIRST PREBOARD EXAMINATION 2025-26
CLASS XII
INFORMATICS PRACTICES (065)

TIME: 3 HOURS **M.M-70**

General Instructions:

- Please check this question paper contains 37 questions.
- All questions are compulsory. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions
- The paper is divided into 5 Sections- A, B, C, D and 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 case study type questions (33 to 34). Each question carries 4 Marks.
- Section E consists of 3 questions (35 to 37). Each question carries 5 Marks.
- 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.	What will be the result of the following SQL query? SELECT MOD (5, 0); a) 5 b) 0 c) NULL d) Error	1
2.	Tanvi has stored the records of all students of her class in a MySQL table student. Suggest suitable SQL clause that she should use to display the marks of students in increasing order. a) Sort by b) Group by c) where d) order by	1
3.	Identify the networking device responsible for routing data packets based on their destination addresses. a) Modem b) Hub c) Repeater d) Router	1
4.	Which attribute is used to obtain the total number of elements in a DataFrame df? a) df.shape b) df.ndim c) df.size d) df.size()	1
5.	Website stores the browsing activity through _____ a) web page b) Cookies c) passwords d)server	1
6.	Write the output of the following SQL command. SELECT ROUND(65.532,-2); a) 65 b) 70 c) 100 d) 65.32	1
7.	Legal term to describe the rights of a creator of original creative or artistic work as is: a) Copyright b) copyleft c) Patient d) Trademark	1
8.	Consider the following Series in python s=pd.Series([11,22,33,44],index=['a','b','c','d']) Which statement will display all odd values?	1

	a) print(s[s%2!=0]) b) print([s%2!=0]) c) print(s[s%2==0]) d) Error)	
9.	If column "salary" of table Employee contains the following values: - 80000, 45000, 45000, 50000, 80000, 70000, then what will be the output after the execution of the given query? SELECT COUNT(DISTINCT Salary)FROM Employee ; a) 2 b) 4 c) 5 d) 6	1
10.	While surfing on Internet if your geo location is turned on, than it makes – a) Active digital footprint b) Passive digital footprint c) Active e footprint d) Passive e footprint	1
11.	Which one of the following is a string function? a) COUNT() b)MID() c) MOD() d)MAX()	1
12.	The following code create a DataFrame df with _____columns and …. rows import pandas as pd df=pd.DataFrame([{'a':25,'b':50},{'a':15,'b':50,'c':30}]) a) 1,4 b) 2,3 c) 3,2 d) 4,1	1
13.	Ishita is using a software which are sold commercially and their source code not shared or distributed to the users. such software is known as …….?	1
14.	Which of the command is used to change the datatype of the attribute? a) Update b) Modify c) Alter d)change	1
15.	The correct statement to read from a CSV file in a dataframeis : a) <DF>.read_csv(<file>) b) <File>. read_csv( )(<DF>) c) <DF> = pandas.read(<file>) d) <DF> = pandas.read_csv(<files>)	1
16.	…….is a service that allows to put a website or a web page on the Internet. (a) Web Server (b) Web Browser (c) Web Hosting (d) Domain Name System	1
17.	If the substring is not present in a string, the INSTR () returns: a) – 1 b) 1 c) NULL d) 0	1
18.	Anita wants to show the legends on the upper left of histogram used by her for her project. Her sample code is given here:- import matplotlib as plt data=[2,2,2,1,1,1,2,4,5,6,6,7,7,7,7,8,9,1,2] plt.hist(data) …….. plt.show() help her to write missing function that add legends in the graph.	1
19.	What is not true about Series in pandas. a) With labelled indexes the value at the end index label is excluded in the output.	1

	b) A Series is a one-dimensional array containing a sequence of values. c) Each value has a data label associated with it also called its index. d) Positional index takes an integer value that corresponds to its position in the series starting from 0.	
	Q 20 and 21 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b)Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d)A is false but R is True	
20.	Assertion (A): Like iterations in Python, we can also iterate over DataFrames. Reason (R): There are many ways using which we can iterate over a DataFrame.	1
21.	Assertion (A): In SQL, SELECT is a Data Definition Language (DDL) Command. Reason (R): DDL commands are used to create, modify, or remove database structures, such as tables.	1
	SECTION B	
22	(a) Akhand wants to create a Pandas Series as shown below: Rec1 10 Rec2 10 Rec1 10 Rec2 10 Help him to complete the code and give the output import pandas as pd S =pd. Series(data=……., index=2*....) print(S.shape) **OR** What will be the output of the Python program ? import pandas as pd I=['Apple','Banana','Mango','Orange','Litchi'] df=pd.DataFrame(I, index=[1,2,3,4,5]) print(df.iloc[1:3]) print(df.tail(2))	2
23	Ravi's school started an "E-Waste Collection Drive" to collect old computers, printers, and mobile phones from students and staff. As an informed student of Computer Science, suggest two responsible actions Ravi and his classmates can take to ensure safe and environment-friendly disposal of e-waste.	2
24.	Consider a given Series , Subject: ENGLISH 75 HINDI 78 MATHS 82 SCIENCE 86 dtype: int64	2

	a) Write a program in Python Pandas to create this series using dictionay. b) Write a python code to display marks greater than 80.	
25.	Sejal is creating an online portfolio to showcase her coding projects. She plans to include separate sections like *Home*, *About Me*, *Projects*, and *Contact*. Help Sejal identify — (a) Which part represents a **web page** and which represents a **website**? (b) Give one difference between webpage and website.	2
26.	Write SQL queries to perform the following: a) Extract the “Bharat” from the string "Viksit Bharat Builathon 2025”. b) Find and display the position of the substring "Bharat” in the string "Viksit Bharat Builathon"	2
27.	Nowadays all of us frequently use social media to connect with our friends. Give any two netiquettes that we should follow while communicating on social media.	2

28.	(a)Write the output of the following code:
	`import pandas as pd`
	`d1={'acc':98,'bst':95,'eco':88}`
	`d2={'acc':94,'eco':79}`
	`d3={'acc':89,'bst':76,'eco':81}`
	`df=pd.DataFrame([d1,d2,d3],index=['Riya','Smita','Srishti'])`
	`print(df)`
	`df.drop(columns=['eco'],inplace=False)`
	`print(df)`
	OR
	(b)Write the output of the following code:
	`import pandas as pd`
	`d1={'acc':98,'bst':95,'eco':88}`
	`d2={'acc':94,'eco':79}`
	`d3={'acc':89,'bst':76,'eco':81}`
	`df=pd.DataFrame([d1,d2,d3],index=['Riya','Smita','Srishti'])`
	`print(df)`
	`df.drop(index=['Smita'],inplace=True)`
	`print(df)`
		2

	SECTION C	
29.	Manvi received a message that she needs to update the KYC for her Bank Account therefore she should upload her Aadhar Card, Bank Account Number and the OTP on the link given in her message. Answer the following questions: a) Should Manvi upload the documents and give the OTP on the link ?	3

b) Should Manvi call her bank immediately to recheck the validity of the message received ?

c) What is the act mentioned in the message known as ?

30. a) Write a Python program to create a Pandas Series "**Mobile**" using ndarray, where the company names are the indices and the model numbers are the data. 3

Apple A2567

Samsung SM-G991B

Google GA02434-US

dtype: object

OR

(b) Write a Python program to create the Pandas DataFrame displayed below using a list of dictionaries with following data :

companies = ['Apple', 'Samsung', 'Google']

model_number= ['A2567', 'SM-G991B', 'GA02434-US']

Price=[98000,45000,68000]

31. (i) Write an SQL statement to create a table named REGISTRATION, with the following specifications: 3

Column Name	Data Type	Constraints
Reg_Id	varchar (10)	Primary Key
SName	varchar (30)	
Course	varchar (10)	
fee	Integer	

(ii) Write an SQL Query to insert the following data into the REGISTRATION table :

R120234, Bhavya sharma, JEE.

32 **(a)** Manan has been entrusted with the management of ABC School database. He needs to access some information from STUDENT and CLUB tables for a survey analysis. Help him extract the following information by writing the desired SQL queries as mentioned below: 3

Table: Member

Rno	name	DOB	Gender	marks	Clubid
R1	JOHN	15-11-2008	M	98	101
R2	SMITH	27-10-2008	M	75	102
R3	GEORGE	13-05-2009	M	79	103
R4	LARA	16-07-2009	F	62	101
R5	SARA	07-08-2009	F	85	103

Table: Club

clubid	clubname	fees
101	Eco	500
102	Cyber	700
103	Excursion	1000

a) To increase the fees of all clubs by 200 which have 'o' in their club name.

b) Write a query to display name of the student and their clubname and fee.

c) Write a query to display the name, club name, and date of birth of the students who were born in the year 2009.

OR

(b) Write SQL queries for (a) to (c) based on the tables PASSENGER and FLIGHT given below:

Table: Passenger

PNO	NAME	GENDER	FNO
1001	JOHN	MALE	F101
1002	SMITH	MALE	F104
1003	GEORGE	MALE	F102
1004	LARA	FEMALE	F103

Table: -FLIGHT

FNO	START	END	F_DATE	FARE
F101	MUMBAI	CHENNAI	2024-12-25	4500
F102	MUMBAI	BENGALURU	2024-11-20	4000
F103	DELHI	CHENNAI	2024-12-10	5500
F104	KOLKATA	MUMBAI	2024-12-20	4500
F105	DELHI	BENGALURU	2024-01-15	5000

a) Write a query to change the fare to 6000 of the flight whose FNO is F104.

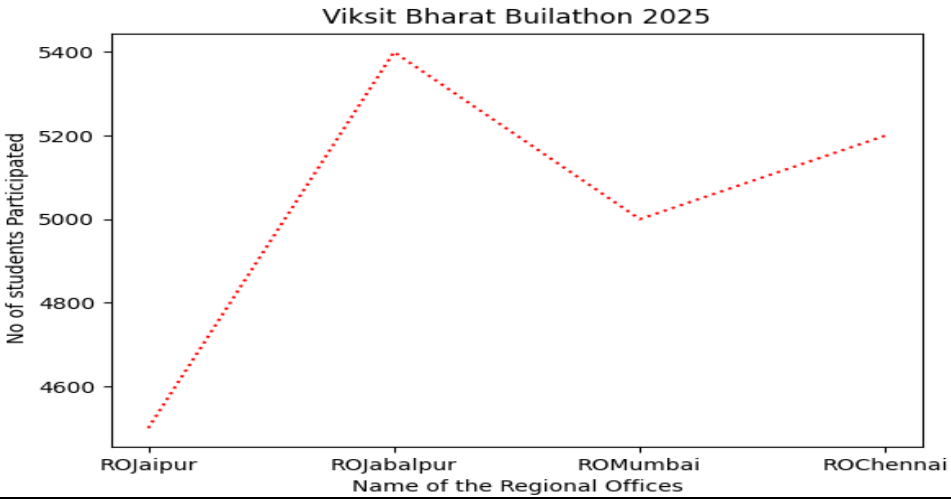
b) Write a query to display the name of the passenger, start city and destination city along with their Flight number.

c) Write a query to display the NAME, corresponding FARE and F_DATE of all PASSENGERS who have a flight to START from DELHI.

SECTION D

33. For the Viksit Bharat Builathon 2025, different Regional Offices have registered a number of students. A student named Abhinav has been given the task of completing a Python program that generates a line chart representing the number of students registered by four different Regional Offices. He needs to correctly fill in the missing parts of the code to visualize this data accurately. 4

Name of the Region	Number of students registered
ROJaipur	4500
ROJabalpur	5400
ROMumbai	5000
ROChennai	5200



import …… as plt

Region=['ROJaipur','ROJabalpur','ROMumbai','ROChennai']

No_of_Students=[4500,5400,5000,5200]

plt……(…… ,……..,color='r',……='dotted')

plt…….……('Viksit Bharat Builathon 2025')

plt.xlabel('Name of the Regional Offices')

plt.ylabel(…….)

plt…….('VBB.pdf')

plt.show()

34. **(a)** 4

Table : EMPLOYEE

Ecode	Ename	Area	Salary	Dept	Doj
S001	Ramesh	North	12000	Sales	2015-12-01
S002	Rohit	South	10500	Finance	2012-08-01
S003	Sunil	South	6800	Front Office	2018-02-01
S004	Sambhav	West	28000	Back Office	2010-04-01
S005	Ankit	East	9000	NULL	2018-10-01
S006	Rishu	North	25000	Finance	2019-02-01

a) Display the minimum salary from each area.

b) Display the average salary from each department where number of employees is more than 1.

c) Display employee name and name of department, both in uppercase, all the records in descending order of date of joining.

d) Display the details of all employee who have joined in the year after 2015.

OR

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

Table: PRODUCT

PID	PNAME	PRICE	QUANTITY
P1001	Eraser	10.50	5
P1002	Ball Pen	15.00	2
P1003	Gel Pen	25.10	3
P1004	Ruler	5.00	1

Find the output of the following SQL queries:

a) SELECT 10+MOD(QUANTITY,3) FROM PRODUCT WHERE PNAME = "Eraser";

b) SELECT ROUND(PRICE) *QUANTITY FROM PRODUCT WHERE QUANTITY > 2;

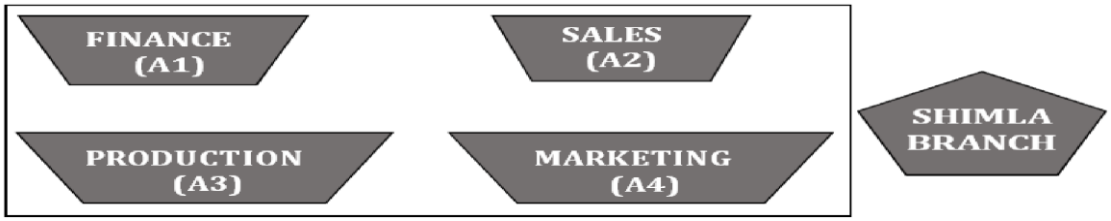
c) SELECT UCASE (RIGHT (PNAME, 2)) FROM PRODUCT;

d) SELECT PNAME FROM PRODUCT WHERE RIGHT(PID,1)=4;

SECTION E

35 Spotlight Private Ltd., Bangalore has different divisions, Finance (A1), Sales (A2), Production (A3) and Marketing (A4). 5

The layout of the Bangalore branch is :



The company also has a branch in Shimla. The management wants to connect all the divisions as well as all the computers of each division (A1, A2, A3, A4).

Distance between the branches are as follows:

A3 to A1 25 m	25m
A1 to A2 40 m	40m
A2 to A4 25 m	25m
A4 to A3 120 m	120m
A3 to A2 990 m	990m
A1 to A4 170 m	170m

The number of computers in each branch is as follows:

A1	50
A2	40
A3	110
A4	60

Based on the above specifications, answer the following questions:

a) Suggest the topology and draw the most suitable cable layout for connecting all the divisions of Bangalore branch.

b) Suggest the most suitable place (i.e. Wing) to house the server of this organisation with a suitable reason.

c) Suggest the kind of network required (out of LAN, MAN, WAN) for connecting Production(A3) with Shimla branch.

d) Suggest the placement of the following devices :
   (i) Repeater
   (ii) Switch/Hub

e) The company wanted to develop a healthy relation among the employees, therefore the HRA planned an online session with everyone so that they could play games from their devices. Suggest the protocol that helped to send the voice signals over Internet.

36. Mr vishwas, a data analyst working on a college admission project, has created the following DataFrame Sub_Details to store subjectwise details: 5

	Subject	Total student	Seat Availability
1	IT	50	No
2	AI	45	Yes
3	Cyber Security	40	Yes
4	Web Design	50	No

Help her by answering the following questions:

a) Write a code to add new column FEE with values: 2000,2500,2200,2100.

b) Add a new row with values [Multi Media,43, Yes,2300]

c) Display only the "Subject" and "Seat Availabilit " columns from the DataFrame

d) Give the outputs

```
print(Sub_details[2:4:2] )
print(Sub_details.iloc[1:3,1:2])
```

e) Rename the column name 'Subject' to 'Subject opted' in the same Data frame.

37. (a) Write suitable SQL query for the following: 5

a) To extract the first five characters from the column "**subject"** in the **NOBEL** table.

b) To display the total number of winners whose subject is Literature in the **NOBEL** table.

c) To display country name in capital letter column name is cname ,after removing leading and trailing spaces in the table **NOBEL**.

d) To display Month name from DOB column in the table **NOBEL**

e) Calculate the square of the Amount for each prize money in the prize_money column of the **NOBEL** table.

OR

(b)

a) To display the total score from the **runs** column (attribute) in the **CRICKET** table

b) To display the last three characters of the **registration_number** column (attribute) in the **VEHICLES** table. (Note: The registration numbers are stored in the format DL-01-AV-1234)

c) To display the data from the column (attribute) **name** in the **EMPLOYEE** table, after eliminating any leading and trailing spaces.

d) To display the average value in the salary column (attribute) of the **TEACHERS** table.

e) To determine the count of rows in the **COMPUTER** table.