KENDRIYA VIDYALAYA SANGATHAN REGIONAL OFFICE LUCKNOW

PRE-BOARD EXAMINATION 2025-26

CLASS: XII

SUBJECT: INFORMATICS PRACTICES (065)

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

General Instructions:

- 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 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.

Q No	**Section-A (21x1 = 21 marks)**	**Marks**
1	You can create a Python pandas series using? a) sequence b) ndarray c) tuple d) all of the above	1
2	An attribute in a relation is foreign key if it is the _____key in any other relation. a) Candidate b) Primary c) Super d) Sub	1
3	Television cable network is an example of: a)LAN b) WAN c) MAN d) INTERNET	1
4	Predict the output of the following query: Select mod(5,3);	1
5	_____ are the records and traces that we left behind as we use Internet.	1
6	If a Data frame is created using a 2D dictionary, then the indexes/row labels are formed from. (a) dictionary's values (b) inner dictionary's keys (c) outer dictionary's keys (d) none of these	1
7	Which of the following functions is used to create a line chart ? (a) line() (b) plot() (c) chart() (d) plotline()	1
8	Which type of values will not be considered by SQL while executing the following statement? SELECT COUNT(column name) FROM inventory;	1

	a)Numeric value b)text value c)Null value d)Date value	
9	The correct statement to read from a CSV file in a dataframe is : (a) <DF>.read_csv(<file>) (b) <File>. read_csv( )(<DF>) (c) <DF> = pandas.read(<file>) (d) <DF> = pandas.read_csv(<files>)	1
10	IPR stands for _____ a) Indian Property Right b)Intellectual Property Right c)Intelligent Property Right d)Intellectual Property Resource	1
11	What will be returned by the given query ? SELECT ROUND(153.669,2); (a) 153.6 (b) 153.66 (c) 153.67 (d) 153.7	1
12	Name any two popular web browsers.	1
13	Which method is used to access vertical subset of a dataframe? a) iterrows() b) iteritems() c) itercolumns() d) itercols()	1
14	What is an example of e-waste? a)A ripened mango b) Unused old shoes c)Unused old computers d)Empty cola cans	1
15	What will be the output of following code- import pandas as pd s1=pd.Series([4,6,8,10,'Ravi',81]) print(s1.head())	1
16	What is the use of the INSTR() function in SQL? a)To replace characters in a string b)To find the length of a string c)To find the position of a substring in a string d)To extract characters from a string	1
17	In given code dataframe 'Df1' has rows and columns import pandas as pd dict= [{'a':10, 'b':20}, {'a':5, 'b':10, 'c':20},{'a':7, 'd':10, 'e':20}] Df1 = pd.DataFrame(dict) (a) 3, 3 (b) 3, 4 (c) 3, 5 (d) None of the above	1
18	For 2D plotting using a Python library, which library interface is often used (a) seaborn (b) plotly (c) matplotlib (d) matplotlib.pyplot	1
19	Expand MODEM.	1
	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 rename function of Data Frame does not rename the columns of the original data frame, but instead returns a dataframe with updated column names. Reason (R): Default value of inplace parameter in rename function is False.	1
21	Assertion (A):The ORDER BY keyword by default sort the result-set in ascending order. Reason (R): Alphabetically Ascending comes first then descending.	1
	Section - B (7x2 = 14 marks)	
22	(A) What is a Series in Python Pandas? Also, give a suitable example to support your answer. OR (B) What does the term 'library' signify in Python? Mention one use for each of the following libraries: • Pandas • Matplotlib	2
23	What do you understand by a website? Mention any two points of difference between a Website and Webpage?	2
24	What do you mean by aggregate functions? Explain any two in short.	2
25	(A) Briefly explain the term URL. Also give one example of it. OR (B) Explain the concept of Cookies in Internet world.	2
26	Gopi Krishna is using a table Employee which has columns -Code,Name,Salary,Deptcode. He wants to display maximum salary department wise but he did not get the desired result. Rewrite the query given below with necessary change to help him get the desired result. **SELECT Deptcode,MAX(Salary) FROM Employee;**	2
27	Name the methods for proper treatment of e-waste.	2

28	(A) What will be the output of the following code:
	import pandas as pd
	numbers=pd.Series([9,8,7,6,5],index=range(0,10,2))
	print(numbers[1:3])
	OR
	(B) Answer the following questions based on the code given below : -
	..... # Statement 1
	Ld=[{'a',10,'b':20},{'a':5,'b':10,'c':20}]
	df=pd.DataFrame(Ld)
		2

	print(df) i) Write the statement 1 in the above code. ii) How many columns will be there in the dataframe.	
	Section - C (4x3 = 12 marks)	
29	Manohar received an email from a company, named Make money Pvt. Ltd., claiming that Manohar has won 20lakhs in a survey done online. In order to claim the prize money, he was required to answer few security questions such as his Name, Account number, PAN card details, Phone number and OTP for verification purposes. For this, he had to click on the link provided in the email. Answer the following questions: (i) Should Manohar give the required details to the company? (ii) What is the activity depicted above? (iii) What should he do with this email?	3
30	(A) Write a Python code to create a DataFrame with appropriate column headings from the list given below: [[101,'Gurman',98],[102,'Rajveer',95],[103,'Samar' ,96],[104,'Yuvraj',88]] OR (B) Write python code to create the following series using Dictionary: 101 Harsh 102 Arun 103 Ankur 104 Harpahul 105 Divya 106 Jeet	3
31	Write MySQL statements for the following: i. To create a database named STARTUP. ii. To create a table named SHOP based on the following specification:	3

COLUMN NAME	DATATYPE	SIZE	CONSTRAINT
FNO	INTEGER	5	PRIMARY KEY
FNAME	VARCHAR	25	
TYPE	CHAR	10	
STOCK	INTEGER	3	
PRICE	DECIMAL	(8,2)	

32	(A) Given the following tables:	3

Table: STUDENTS

S_ID	NAME	AGE	CITY
1	Rahul	20	Delhi
2	Priya	22	Mumbai
3	David	21	Delhi
4	Neha	23	Bengaluru
5	Khurshid	22	Delhi

Table: GRADES

S_ID	SUBJECT	GRADE
1	Math	A
2	English	B
3	Math	C
4	English	A
5	Math	B

Write SQL queries for the following:

i. To display the number of students from each city.
ii. To find the average age of all students.
iii. To list the names of students and their grades.

OR

B) Consider the Following Tables

Table 1: PRODUCTS

This table stores the basic details of the products available in a shop.

PID	PName	Category
201	Laptop	Electronics
202	Chair	Furniture
203	Desk	Furniture
204	Smartphone	NULL
205	Tablet	Electronics

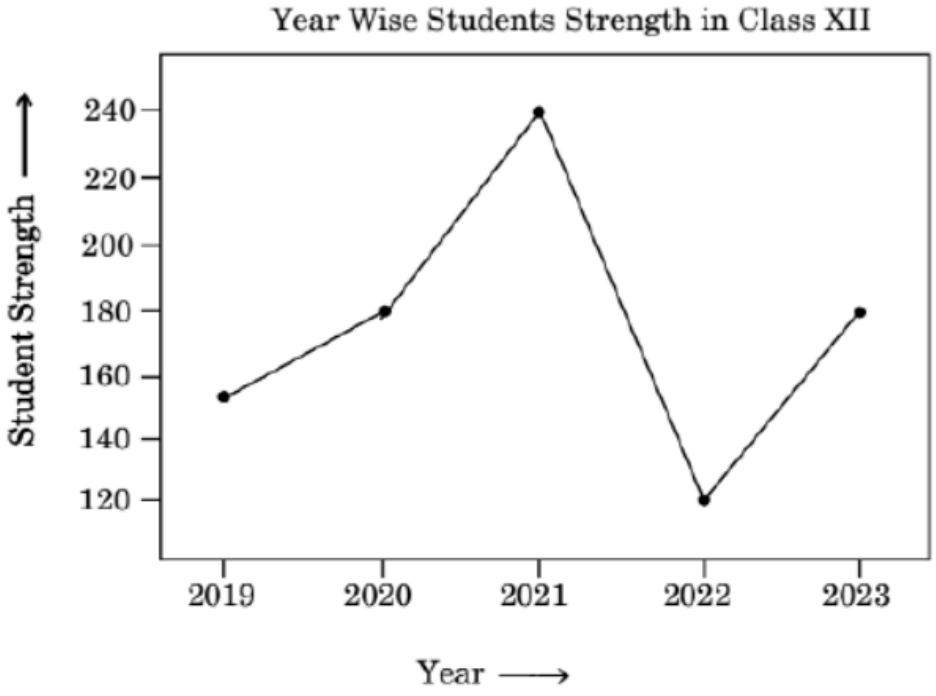
Table 2: SALES

This table records the number of units sold for each product.

SaleID	PID	UnitsSold
301	201	50
302	202	100
303	203	60
304	204	80

	(i) To delete those records from table SALES whose UnitsSold is less than 80. (ii) To display the names of all products whose category is not known. (iii) To display the product names along with their corresponding units sold.	
	Section - D (2x4 = 8 marks)	
33	Rajat, a school admission in charge, is working on a Python program to create a line graph that represents the five year enrollment in Class XII . However, some parts of his code are incomplete. Help Rajat by filling in the blanks in the following Python program.	4

YEAR	STUDENT STRENGTH
2019	150
2020	180
2021	240
2022	120
2023	180




```
_____ as plt  #STATEMENT-1
Year=['2019', '2020', '2021', '2022', '2023']
Strength=[150, 180, 240, 120, 180]
_____ #STATEMENT-2
_____ #STATEMENT-3
plt.xlabel("Year")
plt.ylabel("Student Strength")
_____ #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. Write the suitable code for the blank space in the line marked as Statement-2, which plots the line graph with the appropriate data .
III. Fill in the blank in Statement-3 with the correct Python code to set the title of the graph.
IV. Fill in the blank in Statement-4 with the appropriate Python code to save the graph as an image file named stud.png.

34 (A) Mohit is a database manager at a retail company. The company maintains a Customer table in their database to track customer information. 4

Table : Customer

custid	cust_name	city	age	email	phone
C01	Rohan	Nagpur	30	rohan@gocoders.com	9997454516
C02	Saket	Lucknow	45	saket@gocoders.com	9878555414
C03	Sonal	Nagpur	25	sonal@gocoders.com	8231616161
C04	Shivika	Indore	35	shivika@gocoders.com	9947166151
C05	Trisha	Nagpur	28	trishaa@gocoders.com	9957151516

i)Write an SQL query to display all customer names in Uppercase sorted on age in descending order
ii)Write an SQL query to find the minimum age of all customers from each city.
iii)Display the last three letters from email.
iv) Write an SQL query to change the phone number of Trisha to 8995715156.

OR

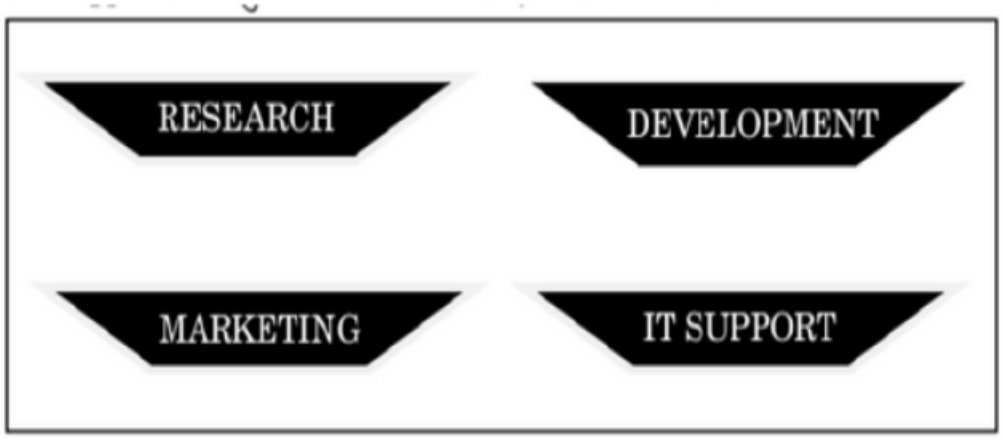
(B) Consider the following table: SALESMAN.

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;

Section - E (3x5 = 15 marks)

35	ABC Innovators Pvt. Ltd., Bengaluru is a company specializing in IoT solutions. They have different departments : Research, Development, Marketing and IT Support. The layout of the  Bengaluru branch is as follows : **Distance between the departments :** ● Research to Development : 60 m ● Research to Marketing : 80 m ● Research to IT Support : 70 m ● Development to Marketing : 100 m ● Development to IT SupORport : 90 m ● Marketing to IT Support : 110 m **Number of computers in each department :** ● Research : 40 ● Development : 120 ● Marketing : 100 ● IT Support : 20 Based on the above specifications, answer the following questions: i) Suggest the topology and draw the most suitable cable layout for connecting all the	5

	departments in the Bengaluru office. ii) Suggest the type of network (LAN/MAN/WAN) that will be created when the Research department is connected to the Development department. Justify your Answer. iii) Suggest the department for the placement of the server. Explain the reason for your selection. iv) Suggest the placement of Switch/Hub with justification. v) Employees of Bengaluru campus frequently use VoIP technology to communicate to their foreign clients. What is the full form of VoIP ?	
36	Consider the given DataFrame **'Book':** **Name Price** **0 Nancy Drew 150** **1 Hardy boys 180** **2 Diary of a wimpy kid 225** **3 Harry Potter 500** Write suitable Python statements for the following: a) Add a column called Special_Price with the following data: [135,150,200,440]. b) Add a new book named 'The Secret' having price 800. c) Remove the column Special_Price. d) Change the name of Price Column to new name BookPrice. e) Change the price of the book Harry Potter to new price 850	5
37	(A). Write suitable SQL query for the following: a. Display 5 characters extracted from 3th left character onwards from the string 'EK BHARAT SHRESHTHA BHARAT'. b. Display the position of occurrence of string 'GREATEST' in the string 'INDIA IS THE GREATEST COUNTRY. c. Round off the value 453.668 to two decimal place. d. Display how many records are there in the Employee table. e. Display Sum of Salary in the Salary column (attribute) in the Employee table. **OR** (B). Write suitable SQL query for the following: a. Display 5 characters extracted from 4th left character onwards from thestring 'INFORMATICS PRACTICES' .	5

	b. Display the position of occurrence of string ‘DUMPTY’ in the string ‘HUMPTY DUMPTY SAT ON A WALL’. c. Round off the value 45.1876 to one decimal place. d. Display the remainder of 77 divided by 4. e. Remove all the expected leading and trailing spaces from a column student_name of the table ‘result ’.	