O.P.JINDAL SCHOOL , SAVITRI NAGAR

PRE – BOARD – II (2025-26)

CLASS – XII (SET - B) **Maximum Marks:70**
SUBJECT - INFORMATICS PRACTICES (Code No. 065) **Time Allowed: 3 Hrs.**

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.

Q No.	Section-A (21 x 1 = 21 Marks)	Marks
1	State whether the following statement is True or False: Series are capable of holding homogeneous datatype only.	1
2	Which function in Python allows you to rename the column or row indices in a dataframe? (a) reindexed() (b) changerow() (c) rename() (d) None of the above	1
3	While performing mathematical operations on series objects, non-matching indices are filled with: (a) Null (b) Blank (c) Nan (d) Zero	1
4	Which of the following command is used to display first two rows of a DataFrame 'DF' ? (a) DF.head() (b) DF.header() (c) DF.head(2) (d) DF.Head(2)	1

5	When a Dataframe is created from list of dictionaries, then dictionary keys will become _____ (a) Row labels (b) Default numeric value (c) Column labels (d) None of the above	1
6	Identify the function to remove a column from an existing dataframe? (a) df. remove (col_name) (b) df. drop (col_name, axis =1) (c) df. del (axis =0, col_name) (d) df. delete (col_name, axis=1)	1
7	Which of the following function is used to import a dataframe from a csv file? (a) to_csv( ) (b) read_csv( ) (c) import_csv( ) (d) export_csv( )	1
8	State True / False. In SQL, a table can have more than one primary key?	1
9	What will be the output of the following SQL query: SELECT ROUND (20.294,2); (a) 20.29 (b) 20.28 (c) 20.30 (d) 21.29	1
10	The length( ) function SQL returns: (a) Position of a character in string (b) Total number of characters in the string (c) Index of the last character in the string (d) None of the above	
11	Which one of the following functions is used to count the no of rows in a given table in MySQL? a) COUNT (*) b) CARDINALITY ( ) c) COUNT (Column name) d) None of the above	
12	The aggregate function avg ( ) returns _____ from a set of values in an SQL table. (a) Total (b) Mean (c) Mode (d) Difference	
13	Which SQL clause allows dividing the SQL table into groups? a) group by b) group c) order by d) having	

14	Pick the odd one out of the following? a) update b) select c) drop d)delete	
15	Varsha has set up her own company to sell her own range of clothes on Instagram. What type of intellectual property can she use to show that the clothes are made by her company. a) Patents b) Copyright c) Trademark d) Design	
16	Which among the following is identified as plagiarism? (a) Paraphrasing text with proper citation (b) Creating original content based on research (c) Citing sources correctly in a bibliography (d)Quoting someone's work without proper citation	1
17	Identify the networking device that regenerates and re broadcast signals in a network (a) Router (b) Modem (c) Hub (d)Repeater	1
18	Which among the following topology has Central Node dependency? a) Bus b) Star c) Tree d) Mesh	1
19	An online discussion group that allows direct live communication is known as: (a) WebCrawler (b) Hyperlink (c) e-Mail (d) Chat group	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 is not the reason of A. (c) A is True, but R is False. (d) A is False, but R is True.	
20	Assertion (A): We can add a new column in an existing dataframe using .at or .loc methods. Reasoning (R): When we reassign new values to an existing column in a data frame, the previous values are overwritten.	1

21	Assertion (A): Update is an SQL command used to change the contents in the table. Reasoning (R): The update command is a DDL command in SQL.	1
Q No.	**Section-B (7X2 = 14 Marks)**	**Marks**
22	(a) What is a series with respect to Python Pandas? How is it different from a list? **OR** (b) Define the term "Boolean Indexing" in python pandas with an example.	2
23	Explain any two Data frame attributes with an example.	2
24	Explain the term Free and Open-Source software with an example.	2
25	(a) State two differences between Static and Dynamic web pages. **OR** (b) State one difference between Web server and Web browser. Also give an example for a Web Browser.	2
26	Write SQL queries to perform the following: I. Display the position of occurrence of string "BO" in string "FIRST PREBOARD". II. Display day of the month for date 20th September 2007	2

27	(a) Write the output of the following code:
	`import pandas as pd`
	`s1=pd.Series(['Sita', 'Gita', 'Rita'],index=[101,102,103])`
	`s2= pd.Series ([16, 17, 19] ,index=[101,102,103])`
	`s3= pd.Series ([81.0, 80.0, 68.0] ,index=[101,102,103])`
	`data = {'Name': s1, 'Age':s2,'Marks': s3}`
	`df = pd.DataFrame(data)`
	`df.drop(index=101, inplace=True)`
	`print(df)`
	[OR]
	(b) Write the output of the following code:
	`import pandas as pd`
	`s1 = pd.Series([10, 20, 30, 40], index = ['A', 'B', 'C', 'D'])`
	`s2= pd.Series([5, 10, 15], index = ['B', 'C', 'D'])`
	`print (s1+s2)`
		2

28	How does prolonged use of digital devices affect mental health, and what is one way to reduce these effects?	2
Q No	**Section -C (4 x 3 = 12 Marks)**	**Marks**
29	Identify the type of cybercrime for the following situations: (i) A person complains that Rs. 5 lacs have been fraudulently stolen from his / her account online through some online transactions in three days using NET BANKING. (ii) A person complains that his/her debit/credit card is safe with him still somebody has done shopping /ATM transaction on this card. (iii) A person complains that somebody has created a fake profile of Facebook and defaming his/her character with abusive comments and pictures.	3

30 (a) Write a Python program to create a Pandas Series as shown below using a dictionary, Note that left column indicates the indices and the right column are the values in the series.

Biscuit	50
Ice cream	60
Bread	70
Bun	80

OR

(b) Write a Python program to create the Pandas Data Frame displayed below using a list of dictionaries.

3

	Rollno	Name	Age	Marks	Class
10	100	Anand	16	92	12
20	200	Kirshna	15	86	11
30	300	Malik	16	79	12
40	400	Pranshu	14	95	10

31 (a) Write an SQL statement to create a table named PRODUCT, with the following specifications: 2+1=3

Column Name	Data type	Constraints
Product_id	Numeric	Primary Key
Product_Name	Varchar(20)	Not Null
Specification	Varchar(15)	
Rate	Numeric	

(b) Write an SQL Query to delete the column Specification from the table called PRODUCT.

32 A Srikanth, a database administrator created the following tables GAMES and TRAINER as shown below:

Table : GAMES

Gcode	Gname	Type	Prizemoney	Scheduledate
G100	Basket Ball	Outdoor	10000	15-Dec-2023
G200	Foot Ball	Outdoor	15000	20-Jan-2024
G300	Chess	Indoor	9000	19-Mar-2023
G400	Table Tennis	Indoor	8000	25-Dec-2023
G500	Cricket	Outdoor	20000	17-Feb-2024

B

Table: TRAINER 3

Tid	T_Name	Gcode
T101	Max	G300
T102	Rudy	G400
T103	Robert	G100

Write suitable SQL query for the following.

I. Display the total prize money for each type of game.

II. Display the Gcode, Prize money along with Trainer Name for all the trainers.

III. To increase the prize money by 500 where game name is Basket Ball.

OR

Consider the following table and write the output of the following SQL Queries.

Table : Flowers

F_id	F_Name	Price	Qty
F101	Hibiscus	300	30
F102	Marigold	250	25
F103	Rosews	450	35
F104	Jasmin	400	30

I. Which attribute in the above table you will choose as Primary key? Justify your answer.

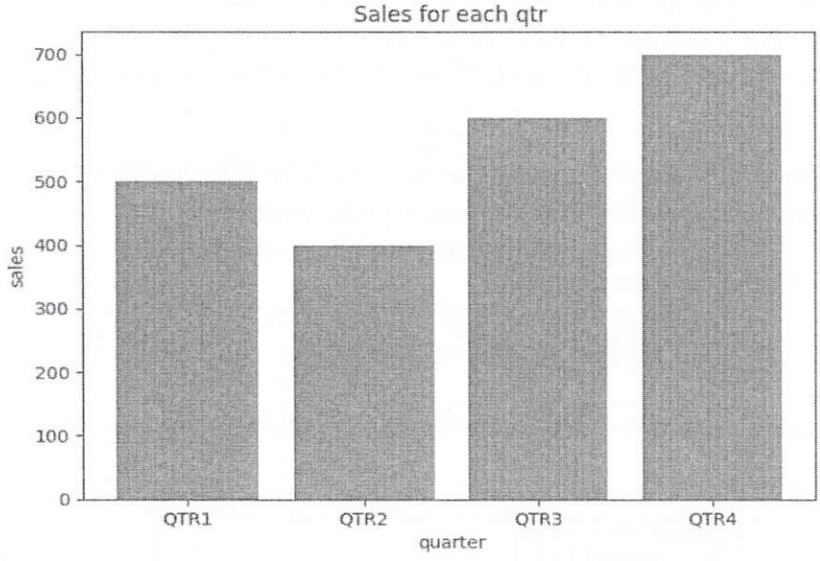
II. Write an SQL query to add a new column "Total_amount" of numeric datatype.

III. Give the output of following SQL query:

Select F_Name, Price from Flowers where Qty > 27 orde4r by F_Name desc;

Q No.	Section-D (2X4 = 8 Marks)	Marks
33	Ananya, a company manager who view the sales of the company in quarter wise. She tries to display the data in matplotlib library using python code. She missed some of the code so she got wrong answer. Help Ananya, to write code correctly and get the output in the form of bar chart. The details of the company and the sample output will be shown below:	4

Quarter	Sales
Qtr1	500
Qtr2	400
Qtr3	600
Qtr4	700




```
import _____as plt      # Statement1
sales =[500, 400, 600, 700]
qtr=['QTR1','QTR2', 'QTR3', 'QTR4']
plt _____ (qtr, sales)                  # Statement 2
plt _____('quarter')                    # Statement 3
plt.ylabel('sales')
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. Fill in the blank in Statement-2 with the name of the function to draw a bar chart with suitable Python code.
iii. Fill in the blank in Statement-3 with the name of the function to set the label on the x-axis.
iv. Refer the graph shown above and fill the blank in Statement-4 with suitable Chart Title.

34 | Nisha, a store manager has created the following table Product: | 4

Table: Product

P_id	Pname	Price
P1001	Notebook	60
P1002	Eraser	10
P1003	Sharpener	15
P1004	Marker	20
P1005	Pencil	25

Write appropriate SQL queries for the following:

I. Display the Product id and their Price sorted in descending order.
II. Display the product name in uppercase whose price is more than 50.
III. Display the maximum price from the Product table.
IV. Display the names of all the products whose Pname has a character 'e' anywhere in its name.

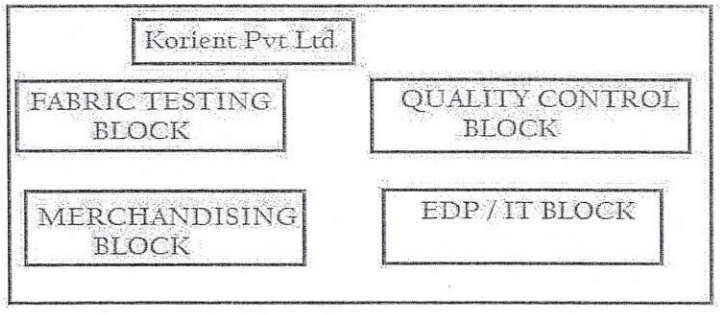
[OR]

Consdering the above table product, write the output of the SQL queries:

i. Select Pname, length(Pname) from product where Price>20;
ii. Select lower(Pname) from product where price between 30 and 70;
iii. Select sum(Price) from product;
iv. Select P_id,Pname from product where Pname like "%r";

Q No. | **Section-E (3X5 = 15 Marks)** | **Marks**

35 | Korient Pvt Ltd, Bangalore has four blocks as shown in the below diagram and is now planning to set up a network. | 5



Distance between each block (in meters) is given as follows:

Merchandising to Fabric Testing	40
Merchandising to Quality Control	80
Merchandising to EDP / IT	120
Fabric testing to Quality Control	40

The number of computers in each block is as follows:

Merchandising	15
Fabric Testing	25
EDP / IT	120
Quality Control	40

	(a) Which device would you suggest to connect each computer in each of the given blocks? (b) Suggest the most suitable block to install the server. Justify your answer. (c) Suggest the ideal cable layout for connecting these blocks physically. (d) Suggest the placement of the 'Repeater' in the layout with a justification. (e) The company is planning to connect the Bangalore Branch office to its Mysore Head office, which is 350 km away. Which type of network will be formed?	
36	Consider the DataFrame df shown below. Name Price Rating 0 Note Book 100 5 1 Project File 120 7 2 Pen Drive 325 6 3 IP Book 500 3 Write Python statements for the DataFrame df to: a. Print the first two rows of the DataFrame df. b. Display titles of all the books. c. Display the data of the 'Name' column from indexes 1 to 3 (both included). d. Rename the column name 'Name' to 'Title'. e. Remove the column rating.	5
37	(a) Write suitable SQL query for the following: a) To display the substring 'BASE' from the main string 'DATABASE'. b) To display the month name from the date "25/10/2025". **c)** To remove the leading and trailing spaces in the string " PRE BOARD ". d) To display the current date. e) To convert the text in the 'Pname' column (attribute) of the 'Product' table in uppercase. **OR** (b) Write suitable SQL query for the following: a) To display the square of 5. b) To display the first four characters from the string "I Love Python" c) To round off the value 40.4567 to 2 decimal place. d) To convert the E_Name column of Employee table to uppercase. e) To display the names of those employees whose joining month is April in the Employee table.	5