

Kendriya Vidyalaya Sangathan, Chandigarh Region

Preboard-II Examination (2025 - 26)

Class: XII

Maximum Marks: 70

Subject: Informatics Practices (065)

Time Allotted: 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	SECTION-A	M			
1	Every web page on the Internet has a unique address. This address is known as : (a) Domain name (b) Protocol (c) Uniform Resource Locator (d) Network Topology	1			
2	What will be the output of following statement : pd.DataFrame([1, 2, 3]) ? A) A DataFrame with one column and three rows B) A Series C) A DataFrame with three columns and one row D) An error	1			
3	Difference between loc() and iloc(): a. Both are Label indexed based functions. b. Both are Integer position-based functions. c. loc() is label index based function and iloc() integer position based function. d. loc() is integer position based function and iloc() label index based function.	1			
4	Shruti received an email that appeared to be from a popular social media platform, requesting her to click a link to reset her password. The link directed her to a fraudulent website designed to capture her login credentials. This situation is an example of which type of cybercrime? (A) Cyber Bullying (B) Violation of Intellectual Property Rights (C) Hacking (D) Phishing	1			
5	Write python statement to display only values greater than 15 from the given series S S <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="padding: 2px 10px;">57</td><td style="padding: 2px 10px;">12</td><td style="padding: 2px 10px;">93</td></tr></table>	57	12	93	1
57	12	93			
6	When two Pandas Series with different indices are added, the result is _____. (A) Error occurs (B) Indices are ignored, and elements are added in order (C) The result has all indices, with missing values filled as NaN	1			

	(D) Only the common indices are retained in the result	
7	Which graph should be used to plot bars that are adjacent to each other to show the frequency of data points that fall within specific user-defined ranges a. plot b. line c. bar d. histogram	1
8	Aarushi has written a novel and wants to protect her literary work. Which type of Intellectual Property right will help her do that? (A) Patent (B) Copyright (C) Trademark (D) Both Copyright & Trademark	1
9	What will be the output of following SQL query SELECT ROUND(4569.954, -1); (a) 4569.0 (b) 4569.9 (c) 4560 (d) 4570	1
10	Which of the following is NOT true with respect to CSV Files? a) Values are separated by Commas. b) to_csv() can be used to save a dataframe as a CSV file c) CSV file is created using a word processor d) CSV file is a type of text file.	1
11	Which of the following is not a DML command? (a) DROP (b) DELETE (c) UPDATE (d) INSERT	1
12	A table Student in MySQL contains a column Gender . Write Domain for Gender column?	1
13	What will be the output of following SQL query SELECT POWER(2,MOD(19,4)); (a) 16 (b) 8 (c) 2 (d) Error	1
14	Now() in MySQL returns _____. (A) Today's date (B) Today's date and current time (C) System's date and time (D) Name of active database	1
15	State True / False. A table can have more than one foreign key and can store duplicate values.	1
16	_____ command is used to delete column from a table. (a) DELETE (b) ALTER TABLE (c) REMOVE (d) DELETE COLUMN	1
17	Which protocol is used while communicating through video calls on the Internet? (A) Video over Internet Protocol (B) Voice over Internet Protocol (C) Video Audio over Internet Protocol (D) Protocol	1
18	In which network topology is every node directly connected to every other node? (A) Star (B) Tree (C) Mesh (D) Bus	1
19	Which of the following is not a feature of Open Source Software ? (A) It can be shared with others without any licensing burden. (B) It is same as free software. (C) It can be downloaded on multiple devices.	1

	(D) Its source code is available for free distribution.	
	Q20 and 21 are ASSERTION & 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):. The output of print(df) and print(df.loc[:]) will be same for a DataFrame df. Reason (R): The statement print(df.loc[:]) will display all rows and columns of the DataFrame df, thus showing the entire data..	1
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.	1
	SECTION-B	
22	How Python Series is different from Python List? OR Write two differences between Pandas Data Frame and Pandas Series?	2
23	Rohan, a Class XII student, has written code for a website but is unsure how to make it available on the Internet. Explain to Rohan the role of a web server and web hosting in ensuring availability of his website on the internet. OR Explain the concept of browser cookies and mention one advantage of using them.	2
24	Rewrite following Python code written below has some syntactical errors. Rewrite correct code and underline each correction. import Pandas as pdn stud=['name': 'raja', 'grade'; 'XII', 'score': 88] s=pd.series(s) print(s)	2
25	Consider the string: "CORPORATE WORLD". Write SQL queries for the following: - To extract and display "RATE" from the string. - Display the position of the first occurrence of "OR" in the given string.	2
26	Carefully observe the following code and write the output: import pandas as pd Year1={'Q1':5000,'Q2':8000,'Q3':12000,'Q4': 18000} Year2={'A' :13000,'B':14000,'C':12000} totSales={1:Year1,2:Year2} df=pd.DataFrame(totSales) print(df)	2

	OR Consider the following Python code and fill in the blanks to display the given output : import pandas as pan customer=[{'name':'rozy', 'age':25, 'sex':'girl', 'post': 'coder'}, {'name':'sham', 'age':34, 'sex':'boy', 'post': _____}, {'name':'ram',' age':28, 'sex':'boy', 'post':'developer'}] company= _____.DataFrame(_____) print(_____) OUTPUT: name age sex post 0 rozy 25 girl coder 1 sham 34 boy analyst 2 ram 28 boy developer																																																							
27	Briefly explain two health concerns associated with excessive use of Digital Devices.	2																																																						
28	Define digital footprints. Differentiate between active and passive digital footprints.	2																																																						
	SECTION-C																																																							
29	Write MySQL Queries for (i) to (iii) on Accessories and Shopee tables TABLE: ACCESSORIES <table><tr><th>No</th><th>Name</th><th>Price</th><th>Id</th></tr><tr><td>A01</td><td>Mother Board</td><td>12000</td><td>S01</td></tr><tr><td>A02</td><td>Hard Disk</td><td>5000</td><td>S01</td></tr><tr><td>A03</td><td>Keyboard</td><td>500</td><td>S02</td></tr><tr><td>A04</td><td>Mouse</td><td>300</td><td>S01</td></tr><tr><td>A05</td><td>Mother Board</td><td>13000</td><td>S02</td></tr><tr><td>A06</td><td>Keyboard</td><td>400</td><td>S03</td></tr><tr><td>A07</td><td>LCD</td><td>6000</td><td>S04</td></tr><tr><td>T08</td><td>LCD</td><td>5500</td><td>S05</td></tr></table> TABLE: SHOPPEE <table><tr><th>Id</th><th>SName</th><th>Area</th></tr><tr><td>S01</td><td>ABC Computronics</td><td>CP</td></tr><tr><td>S02</td><td>All Infotech Media</td><td>GK II</td></tr><tr><td>S03</td><td>Tech Shoppe</td><td>CP</td></tr><tr><td>S04</td><td>Geeks Tecno Soft</td><td>NehruPlace</td></tr><tr><td>S05</td><td>Hitech Tech Store</td><td>NehruPlace</td></tr></table> (i) To display Minimum and Maximum Price for each Name of Accessories (ii) To display Name, Price of all Accessories and their respective SName where they are available (iii) To display Name and Price of all the Accessories in descending order of their Price OR	No	Name	Price	Id	A01	Mother Board	12000	S01	A02	Hard Disk	5000	S01	A03	Keyboard	500	S02	A04	Mouse	300	S01	A05	Mother Board	13000	S02	A06	Keyboard	400	S03	A07	LCD	6000	S04	T08	LCD	5500	S05	Id	SName	Area	S01	ABC Computronics	CP	S02	All Infotech Media	GK II	S03	Tech Shoppe	CP	S04	Geeks Tecno Soft	NehruPlace	S05	Hitech Tech Store	NehruPlace	3
No	Name	Price	Id																																																					
A01	Mother Board	12000	S01																																																					
A02	Hard Disk	5000	S01																																																					
A03	Keyboard	500	S02																																																					
A04	Mouse	300	S01																																																					
A05	Mother Board	13000	S02																																																					
A06	Keyboard	400	S03																																																					
A07	LCD	6000	S04																																																					
T08	LCD	5500	S05																																																					
Id	SName	Area																																																						
S01	ABC Computronics	CP																																																						
S02	All Infotech Media	GK II																																																						
S03	Tech Shoppe	CP																																																						
S04	Geeks Tecno Soft	NehruPlace																																																						
S05	Hitech Tech Store	NehruPlace																																																						

In a database **Real_Estate** , two tables are given below:-

Developer

Dcode	Dname
1	Rahul
2	Manish
3	Faizan

HOUSE

HID	Location	Quantity	Unit _Price	Dcode
H1	Raipur	10	500000	1
H2	Bilaspur	20	300000	2
H3	Bargarh	15	200000	3
H4	Ambikapur	25	250000	2
H5	Raipur	25	280000	2
H6	Bilaspur	20	240000	1

Write queries for following questions based on above given tables:-

- (i) What will be cardinality and degree of Cartesian join of Developer & House Tables
- (ii) To show location and corresponding dname whose unit_price is more than 250000.
- (iii) Show Average Unit Price of each location.

- 30 Ayesha's family is replacing their old computer with a new one. They decide to throw the old computer in a nearby empty field/plot.
- a. Explain any one potential environmental hazard associated with improper e-waste disposal.
 - b. Suggest one responsible way to Ayesha's family for proper disposal of their old computer.
 - c. Describe the importance of recycling in e-waste management.

3

- 31 Write a Python program to create the following DataFrame using a list of dictionaries.

	SUBJECT	PERCENTAGE
0	IP	100
1	CS	95
2	PHYSICS	80
3	CHEMISTRY	90

OR

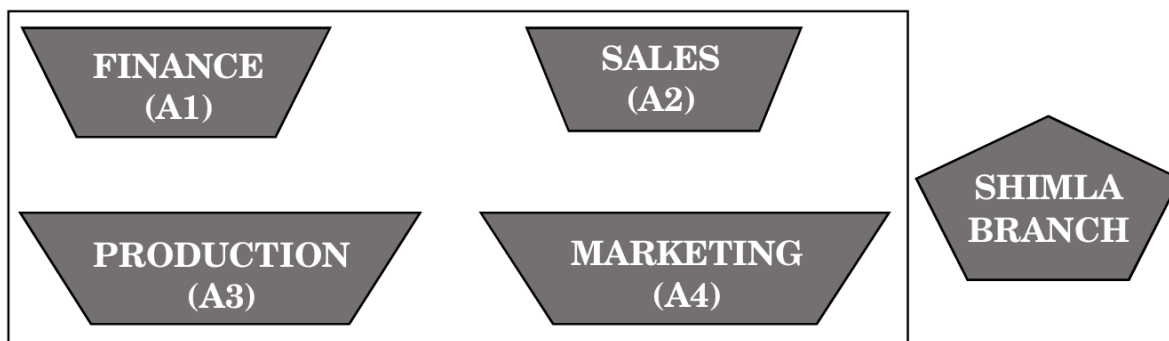
Write a Python Program to create a Pandas Series as shown below using a dictionary. Note that the left column indicates the indices and the right column displays the data.

INDIA	NEW DELHI
NEPAL	KATHMANDU
SRILANKA	COLUMBO
CHINA	BEIJING

3

	OR Create horizontal , cumulative histogram with 8 bins of given weight of 20 students with title “Student Weight chart” and “Killograms” at y-axis. Weight : 45, 82, 63, 12, 45, 99, 78, 54, 65, 74, 25, 89, 24, 44, 55, 77, 62, 35, 38, 64																
	SECTION-E																
35	Write suitable SQL query for the following: I. To extract the first five characters from all the values under product_code column in the Products table. II. To display the total number of orders under the Order_Id column in the Orders table. III. To display the year of the dates from the order_date column in the Orders table. IV. To display the Address column from the Customers table after removing leading and trailing spaces V. To display the dayname of the dates from the order_date column in the Orders table. OR Write suitable SQL query for the following: I. To display the total number of characters in the string DatabaseSystems. II. To extract the last five characters from the Product_Name column of the Products table. III. Display the total sum of the Salary from the Salary column in the Employees table. IV Calculate the square of the Amount for each transaction under the Tran_Amount column of the Transactions table. V. To display the average salary from the Salaries column in the Employees table	5															
36	Consider the given DataFrame‘Book’: <table style="margin-left: 40px;"> <thead> <tr> <th></th><th>Name</th><th>Price</th></tr> </thead> <tbody> <tr> <td>0</td><td>Nancy Drew</td><td>150</td></tr> <tr> <td>1</td><td>Hardy boys</td><td>180</td></tr> <tr> <td>2</td><td>Diary of a wimpy kid</td><td>225</td></tr> <tr> <td>3</td><td>Harry Potter</td><td>500</td></tr> </tbody> </table> 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		Name	Price	0	Nancy Drew	150	1	Hardy boys	180	2	Diary of a wimpy kid	225	3	Harry Potter	500	5
	Name	Price															
0	Nancy Drew	150															
1	Hardy boys	180															
2	Diary of a wimpy kid	225															
3	Harry Potter	500															

ABC Private Ltd., Bangalore has different divisions, Finance (A1), Sales (A2), Production (A3) and Marketing (A4). 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
A1 to A2	40 m
A2 to A4	25 m
A4 to A3	120 m
A3 to A2	990 m
A1 to A4	170 m

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 :

- Suggest the topology and draw the most suitable cable layout for connecting all the divisions of Bangalore branch.
- Suggest the kind of network required (out of LAN, MAN, WAN) for connecting Production (A3) with Shimla branch.
- Suggest the placement of the following devices : (i) Repeater (ii) Switch/Hub
- In which division you will place the server and why?
- The company wanted to develop the website so their employees can access it to apply for their leaves and tour commission claims online. Which type of website (static / dynamic) should be created for company for the same purpose?

*****END OF QUESTION PAPER*****