केन्द्रीय विद्यालय संगठन, कोलकाता संभाग

KENDRIYA VIDYALAYA SANGATHAN, KOLKATA REGION

प्री बोर्ड परीक्षा /PRE BOARD EXAMINTION 2024-2025

कक्षा/CLASS: XII अधिकतम. अंक/ MAX MARKS 70

विषय/SUB: INFORMATICS PRACTICES समय/TIME : 3 Hrs./ घंटे

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 21 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 04 Short Answer type questions carrying 03 marks each.
6. Section D has 02 Case study type questions carrying 04 marks each.
7. Section E has 03 questions carrying 05 marks each.
8. All programming questions are to be answered using Python Language only.

Q	**SECTION-A**	Marks
1.	Which device is used to regenerate the signals over long distance data transmission: i. Switch ii. Modem iii. Repeater iv. None of the above	1
2.	Whenever we surf the Internet using smartphones we leave a trail of data reflecting the activities performed by us online, which is our ? i. Data print ii. Digital activity iii. Digital footprint iv.Digital print	1
3.	Unsolicited commercial emails is known as ..... ? i. Spam ii. Malware iii. Virus iv. Worms	1
4.	Find the output for the below sql statement: Select substr("BoardExam@2025", 4, 7); i. ardExam ii. dExam@2 iii. rdExam iv. rdExam@	1
5	What is the output of following :Select Round(19999.299,-1); i. 199999.3 ii. 20000.299 iii. 2000 iv. 20000	1

6.	Which of the following is Net Etiquette? i. Be Ethical ii. Be Responsible iii. Be Respectful iv. All of the above	1
7.	Which keyword is used to arrange the result of order by clause in descending order? i. DSEC ii. ASCE iii. DESC iv. ASC	1

8.	Raj, a Database Administrator, needs to display the average pay of workers from those departments which have more than five employees. He is experiencing a problem while running the following query:
	SELECT DEPT, AVG(SAL) FROM EMP WHERE COUNT(*) > 5
	GROUP BY DEPT;
	Which of the following is a correct query to perform the given task?
	i. SELECT DEPT, AVG(SAL) FROM EMP WHERE COUNT(*) > 5GROUP BY DEPT;
	ii. SELECT DEPT, AVG(SAL) FROM EMP HAVING COUNT(*) > 5 GROUP BY DEPT;
	iii. SELECT DEPT, AVG(SAL) FROM EMP GROUP BY DEPT WHERE COUNT(*) > 5;
	iv. SELECT DEPT, AVG(SAL) FROM EMP GROUP BY DEPT HAVING COUNT(*) > 5;
		1

9.	Which one of the following functions is used to count the no of rows from the given table inMySQL? i. COUNT(*) ii. CARDINALITY( ) iii. COUNT(Column name) iv. All the above	1
10.	To display First 10 rows of a series object **'Ser1'**, you may write: i. Ser1.tail(10) ii. Ser1.head() iii. Ser1.head(10) iv. Ser1.tail()	1
11.	CSV stands for: i. Column Separated Value ii. Class Separated Value iii. Comma Separated Value iv. Comma Segregated Value	1
12	which protocol allow us to have voice calls over the internet? i. HTTP ii. VoIP iii. Video Chat iv. SMTP	1

13	Stealing someone else's intellectual work and representing it as own, is called _____. i. (i) Intellectual steal (ii) Plagiarism (iii) Pluckism (iv) Pickism	1
14	Which one of the following is an output for SQL statement given below: SELECT MONTH('2022-12-07'); i. 7 ii. 12 iii. 2022 iv. 188	1
15	The act of fraudulently acquiring someone's personal and private information, such as online account names, login information and passwordsis called as__. i. Phishing ii. Identity Theft iii. Plagiarism iv. all the above	1
16	The method used for X axis label a line graph is _____ i. plt.title() ii. plt.ylabel() iii. plt.xlabel() iv. plt.line()	1
17	How do you retrieve a column named "Age" from a DataFrame df? a) df['Age'] b) df.Age() c) df.Age[] d) df.get(Age)	1
18	Which of the following is not a valid attribute of a DataFrame? a) df.columns b) df.shape c) df.size d) df.values()	1
19	Which of the following is a correct way to create a Pandas Series? a) pd.Series([1, 2, 3, 4]) b) pd.Series(1, 2, 3, 4) c) pd.Series{'a': 1, 'b': 2, 'c': 3} d) pd.Series(1, 2, 3)	1
Q20 and 21 are ASSERTION AND REASONING based questions. Mark the correct choice as i. Both A and R are true and R is the correct explanation for A ii. Both A and R are true and R is not the correct explanation for A iii. A is True but R is False iv. A is false but R is True		
20	Assertion (A):- MODEM stands for modulator-demodulator. Reasoning (R): - It is a computer hardware device that converts data from a digital format to analog and vice versa. i. Both A and R are true and R is the correct explanation for A	1

	ii. Both A and R are true and R is not the correct explanation for A iii. A is True but R is False iv. A is false but R is True	
21	**Assertion (A):-** To use the Pandas library in a Python program, one must import it. **Reasoning (R): -** The only alias name that can be used with the Pandas library is pd.	1
	SECTION-B	
22	Briefly explain the basic concepts of a web server and web hosting. **OR** Rati is doing a course in networking. She is unable to understand the concept ofURL. Help her by explaining it with the help of suitable example.	2
23	Anjali writes the following commands with respect to a table employee having fields, empno,name, department, commission. **Command1 :** Select count(*) from employee; **Command2:** Select count(commission) from employee; She gets the output as 4 for the first command but gets an output 3 for the second command. Explain the output with justification.	2
24	What is the difference between the order by and group by clause when used along with the **Select** statement. Explain with an example.	2
25	The python code written below has syntactical errors. Rewrite the correct code and underline the corrections made. Import pandas as pd df ={"Technology":["Programming","Robotics","3DPrinting"],"Time(in months)":[4,4,3]} df= Pd.dataframe(df) Print(df)	2
26	Differentiate between the active digital footprint and passive digital footprints.	2
27	Given two series S1 and S2 S1 A 39 B 41 C 42 D 44 S2 A 10 B 10 D 10 F 10 Find the output for following python pandas statements?a. S1[: 2]*100 b. S1 * S2	2

28 Consider the following DataFrame, DF 2

	Rollno	Name	Class	Section	CGPA
St1	1	Aman	IX	E	8.7
St2	2	Preeti	X	F	8.9
St3	3	Kartikey	IX	D	9.2
St4	4	Lakshay	X	A	9.4

Write commands to :

i. Add a new column 'Stream' to the Dataframe with values (Science, Commerce, Arts, Science.)

ii. Add a new row with values (5 , Mridula ,X, F , 9.8, Science)

SECTION -C

29 Based on the SQL table CAR_SALES, write suitable queries for the following: 3

NUMBER	SEGMENT	FUEL	QT1	QT2
1	Compact HatchBack	Petrol	56000	70000
2	Compact HatchBack	Diesel	34000	40000
3	MUV	Petrol	33000	35000
4	MUV	Diesel	14000	15000
5	SUV	Petrol	27000	54000
6	SUV	Diesel	18000	30000
7	Sedan	Petrol	8000	10000
8	Sedan	Diesel	1000	5000

i. Display fuel wise average sales in the first quarter.

ii. Display segment wise highest sales in the second quarter.

iii. Display the records in the descending order of sales in the second quarter.

30 Consider the following Data Frame "HOSPITAL" 3

	City	Hospitals	schools
0	Delhi	189	7916
1	Mumbai	208	8508
2	Kolkata	149	7226
3	Chennai	157	7617

Write python pandas code to create the above data frame HOSPITAL

31	Identify the type of cybercrime for the following situations: i. A person complains that Rs. 4.25 lacs have been fraudulently stolen from his/her account online via some online transactions in two 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 defaminghis/her character with abusive comments and pictures OR As a citizen of India, what advice you should give to others for e-waste disposal ? Define them in details.	3
32	Consider the following sql table 'automobile' index | company | body-style | wheel-base | num-of-cylinders | price | Dateofmanufacture 0 | bmw | sedan | 101.234 | four | 16925 | 1998-03-27 1 | bmw | sedan | 101.261 | six | 20970 | 1999-05-23 2 | honda | sedan | 96.538 | four | 12945 | 2000-03-02 3 | honda | sedan | 96.519 | four | 10345 | 2001-02-01 4 | toyota | hatchback | 95.727 | four | 5348 | 1999-03-01 5 | toyota | hatchback | 95.173 | four | 6338 | 2000-05-11 Write SQL queries using SQL functions to perform the following operations: i. Display company name and wheel-base after rounding off to nearest ten's decimal places. ii. Display the position of occurrence of the string "dan" in body style. iii. Display the year of manufacturing for sedan; OR Helps Abhay to Compare Having clause and Order by clause with the help of example?	3

SECTION -D

33 Preeti manages database in a blockchain start-up. For business purposes, she created a table named BLOCKCHAIN. Assist her by writing the following queries: [4]

TABLE: BLOCKCHAIN

id	user	value	hash	transaction_date
1	Steve	900	ERTYU	2020-09-19
2	Meesha	145	@345r	2021-03-23
3	Nimisha	567	#wert5	2020-05-06
4	Pihu	678	%rtyu	2022-07-13
5	Kopal	768	rrt4%	2021-05-15
7	Palakshi	534	wer@3	2022-11-29

i. Write a query to display the year of oldest transaction.

ii. Write a query to display the month of most recent transaction.

iii. Write a query to display all the transactions done in the month of May.

iv. Write a query to count total number of transactions in the year 2022.

34 Consider the following DataFrame, ClassDF with row index St1,St2,St3,St4 [1+1=2]

	Rollno	Name	Class	Section	CGPA	Stream
St1	1	Aman	IX	E	8.7	Science
St2	2	Preeti	X	F	8.9	Arts
St3	3	Kartikey	IX	D	9.2	Science
St4	4	Lakshay	X	A	9.4	Commerce

Based on the above dataframe answer the following:

A. Predict the output

i. ClassDF.T

ii. ClasDF [: : -2]

B. Write python statement to print Name,class and CGPA for Student St2 andSt3

OR

write python Statement to print the name and class of students having CGPA morethan 9.0

SECTION-E

35 Write the SQL functions which will perform the following operations: [5]

i. To display the name of the month of the current date .

ii. To remove spaces from the beginning and end of a string, “Panorama”.

iii. To display the name of the day eg, Friday or Sunday from your date of birth, dob.

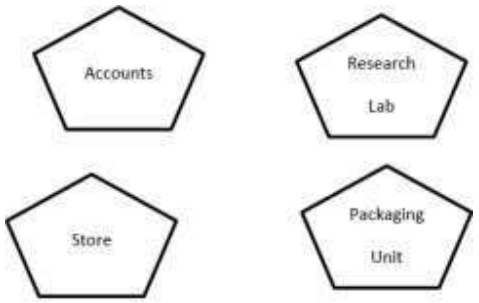
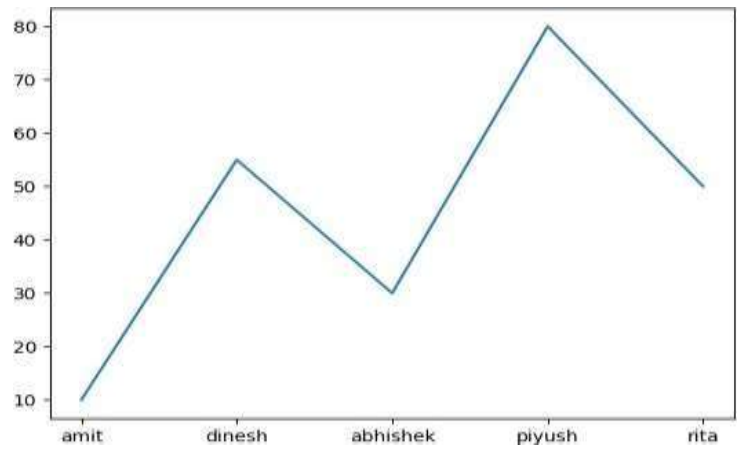
iv. To display the starting position of your first name(fname) from your whole name (name).

v. To compute the remainder of division between two numbers, n1 and n2

OR

Define the following functions

i. LTRIM() ii.MID() iii. MOD() iv. NOW() v. INSTR()

36	SHARMA Medicos Center has set up its new center in Delhi . It has four buildings as shown in thediagram given below: Number of Computers Accounts – 25 Research Lab – 100 Store – 15 Packaging Unit – 60  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 As a network expert, provide the best possible answer for the following queries: i. Suggest a cable layout of connections between the buildings. ii. Suggest the most suitable place (i.e. buildings) to house the server of this organization. iii. Suggest the placement of the following device with justification: a) Repeater b) Hub/Switch iv. Suggest a system (hardware/software) to prevent unauthorized access to or from the network. v. 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.	5
37	Observe the following figure. Identify the coding for obtaining this as output.  Also give suitable python statement to save this chart OR Write a Python program to display a bar chart of the popularity of programming LanguagesData: Programming languages: Java, Python, PHP, JavaScript, C#, C++ Popularity: 22.2, 17.6, 8.8, 8, 7.7, 6.7 Also give suitable python statement to save this chart	5