

KENDRIYA VIDYALAYA SANGTHAN, JABALPUR REGION**FIRST PREBOARD EXAMINATION-2025-26****CLASS: XII****TIME: 3 HOURS****SUB.: INFORMATICS PRACTICES (065)****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.

Q. No.	SECTION-A	Marks
1.	State where the following statement is True or False : A Series object is size mutable.	1
2.	What will be the output of the following SQL command? SELECT 19 MOD 5 ; A) 24 B) 3 C) 3.8 D) 4	1
3.	During an international exchange programme the students need to connect to a classroom in Russia using Skype. Vivek helps the students to connect. Which type of network services is being used? A) Instant Messaging C) WWW B) VoIP D) Email Messaging	1
4.	Which of the following function is used to create a line chart? A) line() C) chart() B) plot() D) plotline()	1
5.	Hub is a A) Broadcast device C) Multicast device B) Unicast device D) None of these	1
6.	Which of the following is not an aggregate function in MYSQL? A) AVG() C) COUNT(*) B) MAX() D) LCASE()	1
7.	The software that is free for any one, and its source code is available for access, modification, correction and improvement is called _____ A) Preparatory Software C) Commercial Software B) Free and Open Source Software D) Copyright Softwares	1
8.	Which of the following is NOT true with respect to CSV files? A) CSV file is created using a word processor. B) Values are separated by comma. C) To_csv() can be used to save a dataframe to a CSV file. D) CSV file is a type of text file.	1
9.	What will be the output of the following SQL query? SELECT SUBSTR("Cyberbullying",6,3); A) ull B) lly C) bul D) berbul	1
10.	_____ helps in data protection through copyrights, patents and trademarks. A) Data Privacy Rights C) Right to Innovation B) Intellectual Property Rights (IPR) D) Right to Data Protection	1

11.	In the context of relational databases, what does the term 'degree' refer to? A) The number of rows in a table. C) The number of Rows and Columns in a tables. B) The number of columns in a table. D) The number of primary keys in a table.	1
12.	Which of the following command will not show first five rows from the Pandas series object named S1? A) S1[0 : 5] C) S1.head(5) B) S1.head() D) S1.head[0 : 5]	1
13.	What is an example of e-waste? A) An old computer C) a ripened banana B) Empty soda cans D) old clothes	1
14.	Which SQL clause is used to arrange the result-set in ascending or descending order? A) SORT BY B) GROUP BY C) ORDER BY D) ARRANGE BY	1
15.	How can we add a new column named 'NAME' to a DataFrame DF ? (Note : Assume the values for the column are stored in a list named DATA) A) DF.add_column(NAME , DATA) B) DF[NAME] = DATA C) DF.set_column(NAME, DATA) D) DF.add(NAME, DATA)	1
16.	Internet is an example of _____ topology. A) Star C) Tree B) Bus D) Mesh	1
17.	Which network device operates at the network layer to connect different networks and forward packets between them based on their destination IP addresses? A) HUB B) SWITCH C) REPEATER D) ROUTER	1
18.	Choose the correct statement/method of Python Visualization from the following. A) display() C) show() B) print() D) line()	1
19.	Choose the correct statement/method for required output. A) df.index C) df.shape B) df.shape() D) df.size	1
	Assertion(A) and Reason(R) 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): Boolean indexing s[s > 5] can return a Series with fewer elements. Reason (R): It filters elements based on a condition.	1
21.	Assertion(A): In SQL, aggregate function avg() calculates the average value on a set of values and produces a single result. Reason(R): The aggregate function are used to perform some fundamentals arithmetic tasks such as min(), max(), sum() etc.	1
	SECTION-B	
22.	(A)What is Pandas library of Python? What is its significance? OR B)Complete the given Python code to get the required output as: Rajasthan import ____ as pd DI = {"Corbett": "Uttarakhand", "Sariska": "Rajasthan", "Kanha": "Madhya Pradesh", "Gir": "Gujrat"} NP = _____. Series(____) print(NP[_____])	2
23	What is digital footprint? Also, provide two examples of how it's created.	2

24.	What will be the output of following SQL queries? A) <code>SELECT RIGHT("VIKSIT-BHARAT",5);</code> B) <code>SELECT ROUND(82531,-2);</code>	2																																										
25.	A) Expand URL, Identify the protocol and domain in the following URL. https://www.cbse.gov.in/cbsenew/examinationbyelaws.html OR B) Write one advantage and one disadvantage of star topology.	2																																										
26.	What is a Database Management System (DBMS)? Mention any two examples of DBMS.	2																																										
27.	What do you mean by term plagiarism? Explain in brief.	2																																										
28.	(A) Mention any 2 main points of difference between Series and DataFrame in Python Pandas. OR (B) Explain how we can access elements of a Series using slicing. Give an example to support your answer.	2																																										
	SECTION-C																																											
29.	Richa, recently started using her social media account. Within a few days, she befriends many people she knows and some that she does not know. After some time, she starts getting negative comments on her posts. She also finds that her pictures are being shared online without her permission. Based on the given information, answer the questions given below. i) Identify the type of cybercrime she is a victim of. ii) Under which act, she can lodge a complaint to the relevant authorities? iii) Suggest her any two precautionary measures which she should take in future while being online to avoid any such situations. OR Mention any three health hazards associated with inappropriate and excessive use of gadgets.	3																																										
30.	A) Vijay, a Data Analyst with a multinational brand has designed the DataFrame DF that contains the four quarter's sales data of different stores as shown below: <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Store</th> <th>Qtr1</th> <th>Qtr2</th> <th>Qtr3</th> <th>Qtr4</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Store1</td> <td>300</td> <td>240</td> <td>450</td> <td>230</td> </tr> <tr> <td>1</td> <td>Store2</td> <td>350</td> <td>340</td> <td>403</td> <td>210</td> </tr> <tr> <td>2</td> <td>Store3</td> <td>250</td> <td>180</td> <td>145</td> <td>160</td> </tr> </tbody> </table> Answer the following questions: i) Predict the output of the following python statement: a. <code>print(DF.size)</code> b. <code>print(DF[1:3])</code> ii) Delete the last column from the DataFrame. iii) Write Python statement to add a new column <code>Total_Sales</code> which is the addition of all the 4 quarter sales. OR (B) Write a Python program to create the following DataFrame using a Dictionary of Series. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>STATE</th> <th>CAPITAL</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Madhya Pradesh</td> <td>Bhopal</td> </tr> <tr> <td>1</td> <td>Rajasthan</td> <td>Jaipur</td> </tr> <tr> <td>2</td> <td>Tamil Nadu</td> <td>Chennai</td> </tr> <tr> <td>3</td> <td>Uttar Pradesh</td> <td>Lucknow</td> </tr> <tr> <td>4</td> <td>Bihar</td> <td>Patna</td> </tr> </tbody> </table>		Store	Qtr1	Qtr2	Qtr3	Qtr4	0	Store1	300	240	450	230	1	Store2	350	340	403	210	2	Store3	250	180	145	160		STATE	CAPITAL	0	Madhya Pradesh	Bhopal	1	Rajasthan	Jaipur	2	Tamil Nadu	Chennai	3	Uttar Pradesh	Lucknow	4	Bihar	Patna	3
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31. A) Write the SQL statement to create a table GARMENT with the following specifications :

2

3

Column Name	Data Type	Key
GCODE	Numeric	Primary Key
GNAME	Character Size 20	
SIZE	Character Size 3	
COLOUR	Character Size 10	
PRICE	Float	

B) Write the SQL statement to display the total number of records in the table GARMENT.

1

32. (A) Given the following tables :

Table : DEPT

DEPTNO	DNAME	LOC
10	ADMIN	DELHI
20	FINANCE	MUMBAI
30	IT	PUNE

Table : EMPLOYEE

EMPNO	ENAME	JOB	SAL	COMM	DEPTNO
8369	SMITH	CLERK	800	NULL	20
8499	ANYA	SALESMAN	1600	300	30
8698	BINA	MANAGER	2850	NULL	20
8934	MITA	CLERK	1300	NULL	10

- Write SQL command to display the employee details with its department no. and department name.
- Write SQL command to display the empno, ename, job and department name, location of department of department no 20 and 30.
- Write SQL command to display the details of employees with their department name those are not getting commission.

OR

(A) Write appropriate SQL queries for following

STUDENT		
SID	SNAME	CLASS
101	ANANYA	10
102	ROHAN	12
103	SIMRAN	11
104	VIKRAM	10
105	PRIYA	12

EXAM			
EXAMID	SID	SUBJECT	MARKS
201	101	MATHS	90
202	102	PHYSICS	85
203	103	CHEMISTRY	88
204	104	BIOLOGY	92
205	105	MATHS	80

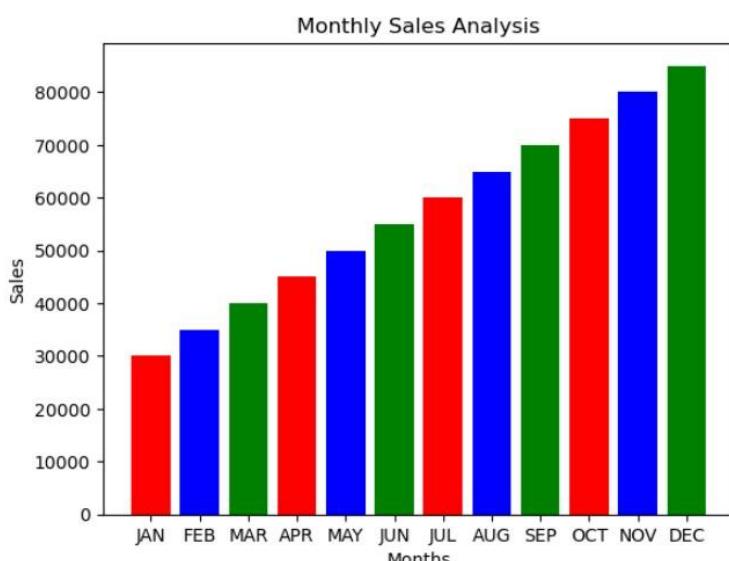
- Calculate the average marks obtained by students in MATHS.
- For each class, show the class and total count of students studying there.
- Display the student names and their corresponding subject.

SECTION-D

33. You are a data analyst at a retail company. The company wants to analyses its monthly sales data for the year 2024 to identify trends and make informed business decisions. The sales data has the following structure.

Months	Sales
JAN	30000
FEB	35000
MAR	40000
APR	45000
MAY	50000
JUN	55000
JUL	60000
AUG	65000
SEP	70000
OCT	75000
NOV	80000
DEC	85000

Complete the Python code to generate the following bar chart :



```
import _____ as plt # Statement-1
import pandas as pd
Months =
["JAN","FEB","MAR","APR","MAY","JUN","JUL","AUG","SEP","OCT","NOV","DEC"]
Sales =
[30000,35000,40000,45000,50000,55000,60000,65000,70000,75000,80000,85000]
plt.bar(_____) #Statement-2
plt.title(_____) #Statement-3
plt.xlabel(_____) #Statement-4
plt.ylabel(_____) #Statement-5
plt.show()
```

- (i) Write the Python code to import the required library, marked as Statement-1
- (ii) Write the Python code to draw the bar graph with red, blue and green colour alternatively for each bar, marked as Statement-2
- (iii) Write the Python code to add title to bar graph, marked as Statement-3
- (iv) Write the Python code to add appropriate label for x-axis and y-axis, marked as Statement-4 and Statement-5

4

34. (A) Sameer created a MySQL table to store the details of Nobel Prize winners. Help him to write the following MySQL queries.

TABLE- NOBEL

Winner_ID	YEAR	SUBJECT	WINNER	COUNTRY	CATEGORY
1001	1913	Literature	Rabindranath Tagore	INDIA	Linguist
1002	1930	Physics	C. V. Raman	INDIA	Scientist
1003	1970	Phycology	Bernard Katz	NULL	Scientist
1004	1971	Chemistry	Gerhard Herzberg	GERMANY	Scientist
1005	2014	Peace	Kailash Satyarthi	INDIA	Social Activist
1006	1994	Literature	Kenzaburo Oe	JAPAN	Linguist
1007	1998	Economics	Amartya Sen	INDIA	Economist

- (i) Display the name of Noble prize winner in "Literature" for the year 1913.
- (ii) Display the subject and category of winners whose country is not known.
- (iii) Display the details of all Nobel Prize winners who were Scientist.
- (iv) Count total number of winners whose subject is "Physics".

OR

(B) Consider the table FURNITURE with the following data. Write SQL queries for the following.

TABLE - FURNITURE

Slno	Item	Type	Price	Stockdate
1	Hammock	Bedroom	35500.56	2020-04-21
2	Divan	Living	31000.41	2019-03-18
3	Bookshelf	Study	38000.58	2019-01-10
4	Writing Desk	Living	61357.94	2020-10-18
5	Nightstand	Bedroom	NULL	2021-07-23

- (i) Display all the records in alphabetically order of Item.
- (ii) Display the type and total number of items of each type.
- (iii) Display the highest price.
- (iv) Display the item with their price rounded to 1 decimal place.

SECTION-E

35

XYZ Media house campus is in Delhi and has 4 blocks named Z1, Z2, Z3 and Z4. The tables given below show the distance between different blocks and the number of computers in each block.

Block Z1 to Block Z2	80 meters
Block Z1 to Block Z3	65 meters
Block Z1 to Block Z4	90 meters
Block Z2 to Block Z3	45 meters
Block Z2 to Block Z4	120 meters
Block Z3 to Block Z4	60 meters

Block	No. of Computers
Z1	135
Z2	290
Z3	180
Z4	195

4

5

	<p>The company is planning to form a network by joining these blocks.</p> <p>i) Out of the four blocks on campus, suggest the location of the server that will provide the best connectivity. Explain your response.</p> <p>ii) For very fast and efficient connections between various blocks within the campus, suggest a suitable topology and draw the same.</p> <p>iii) Suggest the placement of the following devices with justification</p> <ul style="list-style-type: none"> (a) Repeater (b) Hub/Switch <p>iv) VoIP technology is to be used which allows one to make voice calls using a broadband internet connection. Expand the term VoIP.</p> <p>v) The XYZ Media House intends to link its Mumbai and Delhi centers. Out of LAN, MAN, or WAN, what kind of network will be created? Justify your answer.</p>																															
36.	<p>Write suitable Python statements on DataFrame - DOCTOR for the following.</p> <table border="1"> <thead> <tr> <th></th><th>DID</th><th>NAME</th><th>DEPARTMENT</th><th>FEE</th></tr> </thead> <tbody> <tr> <td>0</td><td>101</td><td>Dr. Anoop</td><td>ENT</td><td>1500.00</td></tr> <tr> <td>1</td><td>102</td><td>Dr. Sahni</td><td>ORTHO</td><td>1600.00</td></tr> <tr> <td>2</td><td>103</td><td>Dr. Archna</td><td>GAINICOLOGIST</td><td>1200.00</td></tr> <tr> <td>3</td><td>104</td><td>Dr. Pramod</td><td>ORTHO</td><td>1250.00</td></tr> <tr> <td>4</td><td>105</td><td>Dr. Vaibhav</td><td>ENT</td><td>1000.00</td></tr> </tbody> </table> <p>(i) To print the last 3 rows of the DataFrame DOCTOR. (ii) To display the name of all the doctors. (iii) To add a new column “DISCOUNT” with the value of 200 for all the doctors. (iv) To display the rows with index 2 and 3. (v) To delete the column “DEPARTMENT”.</p>		DID	NAME	DEPARTMENT	FEE	0	101	Dr. Anoop	ENT	1500.00	1	102	Dr. Sahni	ORTHO	1600.00	2	103	Dr. Archna	GAINICOLOGIST	1200.00	3	104	Dr. Pramod	ORTHO	1250.00	4	105	Dr. Vaibhav	ENT	1000.00	5
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37.	<p>(A) Write the SQL queries which will perform the following operations:</p> <p>(i) To display the day part from your date of admission, which is ‘2023-12-13’. (ii) To convert your mail id xyz@zohomail.in to uppercase. (iii) To display todays day name that is TUESDAY or SATURDAY. (iv) To count the number of characters in the string “UTTAR PRADESH”. (v) To display your height 5.41 after rounding off to 1 decimal place.</p> <p style="text-align: center;">OR</p> <p>(B) Explain following SQL functions using suitable example.</p> <p>(i) LTRIM() (ii) RIGHT() (iii) MOD() (iv) MID() (v) POWER()</p>	5																														

