

CLAS XII PRE-BOARD EXAMINATION – 2024-25Q.P. Code: **065/2/1**

Roll No.

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Candidate must write the Q.P. Code on the title page of the answer-book.

- Please check that this question paper contains 10 printed pages.
- Please check that this question paper contains 37 questions.
- Q.P. Code given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- **Please write down the serial number of the question in the answer-book before attempting it.**
- 15 minute time has been allotted to read this question paper. The students will read the question paper only and will not write any answer on the answer-book during this period.

INFORMATICS PRACTICES*Time allowed : 3 hours**Maximum Marks : 70***General Instructions:**

Read the following instructions very carefully and strictly follow them:

- This question paper contains **five** sections. **Section A to E.***
- All questions are compulsory.*
- Section A has **21** questions carrying **1** mark each.*
- Section B has **7** Very Short Answer type questions carrying **2** marks each.*
- Section C has **4** Short Answer type questions carrying **3** marks each.*
- Section D has **2** questions carrying **4** marks each.*
- Section E has **3** questions carrying **5** marks each.*
- All programming questions are to be answered using Python language only.*

Q No.	Section-A (21 x 1 = 21 Marks)	Marks
1	<p>State whether the following statement is True or False:</p> <p>Pandas Series is one dimensional object similar to an array</p>	1
2	<p>Which SQL statement do we use to find out the total number of records present in the table STOCK?</p> <p>a. SELECT * FROM STOCK; b. SELECT COUNT (*) FROM STOCK; c. SELECT FIND (*) FROM STOCK; d. SELECT SUM () FROM STOCK;</p>	1
3	<p>Internet is an example of which type of network.</p> <p>a. LAN b. MAN c. WAN d. PAN</p>	1
4	<p>Which keyword is used to arrange the result of order by clause in ascending order?</p> <p>a. DSEC b. ASCE c. DESC d. ASC</p>	1
5	<p>An organization purchase new computers every year and dumps the old one into the local dumping yard. Write the name of the most appropriate category of waste that the organization is creating every year, out of the following options:</p> <p>a. Business waste b. Commercial waste c. E-waste d. Green waste</p>	1
6	<p>DataFrame.columns is used to display_____.</p> <p>a. row labels b. column labels c. Both a and b d. None of the above</p>	1
7	<p>In order to draw charts in Python, which of the following statement will be used:</p> <p>a. import pyplot.matplotlib as pl b. import matplotlib.pyplot as plt c. Import matplotlib.pyplot as plt d. import pyplot from matplotlib as plt e.</p>	1
8	<p>HAVING Clause in SQL is used to specify conditions on the rows with _____ clause.</p> <p>a. ORDER BY b. GROUP BY c. DISTINCT d. WHERE</p>	1

9	Identify the function used for reading data from a csv file. a. DataFrame.read.csv() b. DataFrame.read_csv() c. DataFrame.read_data() d. DataFrame.csv_read()	1																				
10	What is plagiarism?	1																				
11	_____ returns the number of records in a table. a. MAX() b. SUM(column) c. COUNT(column) d. COUNT(*)	1																				
12	In _____ topology, each communicating device connects to a common central transmission medium. a. Bus b. Star c. Tree d. Mesh	1																				
13	_____ to display the first n rows in the DataFrame. a. DataFrame.first(n) b. DataFrame.head(n) c. DataFrame.count(n) d. DataFrame.tail(n)	1																				
14	_____ is a kind of cyber crime where the attacker gains access to the computer and blocks the user from accessing, usually by encrypting the data. a. Ransomware b. Hacking c. Phishing d. Identity theft	1																				
15	When we create DataFrame from List of Dictionaries, then number of columns in DataFrame is equal to the _____. a. maximum number of keys in first dictionary of the list b. maximum number of different keys in all dictionaries of the list c. maximum number of dictionaries in the list d. None of the above	1																				
16	Match the following SQL functions/clauses with their descriptions: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Functions/clauses</th> <th colspan="2">Description</th> </tr> </thead> <tbody> <tr> <td style="width: 5%;">A</td> <td style="width: 35%;">INSTR()</td> <td style="width: 5%;">I</td> <td style="width: 55%;">It will aggregate the records by the specified columns</td> </tr> <tr> <td>B</td> <td>SUBSTRING()</td> <td>II</td> <td>It will arrange the records in an order</td> </tr> <tr> <td>C</td> <td>ORDER BY</td> <td>III</td> <td>To find the position of the substring in a string</td> </tr> <tr> <td>D</td> <td>GROUP BY</td> <td>IV</td> <td>To extract a specified number of characters from the string.</td> </tr> </tbody> </table>	Functions/clauses		Description		A	INSTR()	I	It will aggregate the records by the specified columns	B	SUBSTRING()	II	It will arrange the records in an order	C	ORDER BY	III	To find the position of the substring in a string	D	GROUP BY	IV	To extract a specified number of characters from the string.	1
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	<ul style="list-style-type: none"> a. A-III, B-IV, C-I, D-II b. A-IV, B-III, C-II, D-I c. A-III, B-IV, C-I, D-II d. A-III, B-IV, C-II, D-I 	
17	<p>To change the 5th column's value at 3rd row as 35 in dataframe DF, you can write:</p> <ul style="list-style-type: none"> a. <code>DF[4, 6] = 35</code> b. <code>DF.iat[4, 6] = 35</code> c. <code>DF[3, 5] = 35 36</code> d. <code>DF.iat[3, 5] = 35</code> 	1
18	<p>Observe the output figure. Identify the code for obtaining this output.</p> <p>The figure is a line plot with the following data points: (1.0, 4.0), (2.0, 5.0), and (3.0, 1.0). The x-axis is labeled from 1.0 to 3.0 in increments of 0.5, and the y-axis is labeled from 1.0 to 5.0 in increments of 0.5.</p> <ul style="list-style-type: none"> a. <code>import matplotlib.pyplot as plt</code> <code>plt.plot([1,2],[4,5])</code> <code>plt.show()</code> b. <code>import matplotlib.pyplot as plt</code> <code>plt.plot([2,3],[5,1])</code> <code>plt.show()</code> c. <code>import matplotlib.pyplot as plt</code> <code>plt.plot([1,2,3],[4,5,1])</code> <code>plt.show()</code> d. <code>import matplotlib.pyplot as plt</code> <code>plt.plot([1,3],[4,1])</code> <code>plt.show()</code> 	1
19	<p>Television cable network is an example of:</p> <ul style="list-style-type: none"> a. LAN b. WAN c. MAN d. Internet 	1
<p>Q-20 and Q-21 are Assertion (A) and Reason (R) Type questions. Choose the correct option as:</p> <ul style="list-style-type: none"> a. Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of Assertion (A) b. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A) c. Assertion (A) is True, but Reason (R) is False d. Assertion (A) is False, but Reason (R) is True 		

20		Assertion (A):- DataFrame has both a row and column index. Reason (R): - A DataFrame is a two-dimensional labelled data structure like a table of MySQL.	1
21		ASSERTION (A): E-waste can be toxic and harmful for nature . REASONING(R): E-Waste that do not organically break down can, over time, can seep directly into the environment	
Section-B (7 x 2 = 14 Marks)			
22	A	Carefully observe the following code: import pandas as pd L=[['S101','Anushree',65],['S102','Anubha',56],['S104','Vishnu',67],['S105','Kritika',45]] df=pd.DataFrame (L, columns=['ID','Name','Marks']) print(df) i. What is the shape of the data frame df? ii. Name the index and column names of dataframe df	2
	B	OR Write a program to create a series object using a dictionary that stores the number of students in each stream of class XII. Note: Assume three streams as 'science', 'arts', 'commerce' with 27, 38, 42 students respectively	
23		Write the differences between Active and Passive Digital footprints	2
24		Write suitable queries for the following: i. To display the name of the month in which you were born. ii. To extract and display "DATABASE" from "RELATIONAL DATABASE MANAGEMENT SYSTEM".	
25		Ram, an IP student is a bit confused in between the terms "URL" and "DOMAIN NAME". Help her in understanding both the terms with the help of suitable example.	2
26		Explain the following keys in RDBMS: i. CANDIDATE KEY ii. ALTERNATE KEY	2
27		Define e-waste. What are the various methods for effective e-waste management?	2
28	A	Kartik tries to create a dataframe using arrays. While executing the code it shows some error messages. Identify the errors, rewrite the correct code and underline the corrections made. <pre>import pandas as pd import numby as np array1 = np.array([10,20,30]) array2 = np.array([100,200,300]) array3 = np.array([-10,-20,-30]) array4=[array1,array2,array3] dFrame = pf.DataFrame(array4) print(dFrame)</pre>	2

		OR	
	B	<p>Complete the given Python code to get the required output:</p> <p>India NewDelhi UK London Japan Tokyo</p> <p>Code: import _____ as pd dict1 = {'India': 'NewDelhi', 'UK': 'London', 'Japan': 'Tokyo'} ser = _____ . _____(dict1) print(_____)</p>	

Section-C (4 X 3 = 12 Marks)

29		Sumesh uses his internet connection to book a flight ticket, leaving a trail of web activities. What is this type of activity called? What are the associated risks?	3																									
30	A	<p>Create a dataframe for storing the following data using list of dictionaries.</p> <p style="text-align: center;">Name English Maths Physics</p> <p>0 Ankit 72 65 78</p> <p>1 Mohit 60 67 65</p> <p>2 Shreya 80 86 83</p> <p style="text-align: center;">OR</p> <p>B Write a code to create a series from empno list and show the last five rows empno=[101,102,103,104,105,106,107]</p>	3																									
31	i.	<p>Create a table named loan for inserting the following datas: (Hint: loanid set as primary key and loandate should need value)</p> <p style="text-align: center;">Table Loan</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>LoanID</th> <th>LoanDate</th> <th>ID</th> <th>EMI</th> <th>Years</th> </tr> </thead> <tbody> <tr> <td>1101</td> <td>2021-03-01</td> <td>5</td> <td>20000</td> <td>4</td> </tr> <tr> <td>1102</td> <td>2021-02-06</td> <td>3</td> <td>10000</td> <td>2</td> </tr> <tr> <td>1103</td> <td>2021-04-12</td> <td>4</td> <td>10000</td> <td>3</td> </tr> <tr> <td>1104</td> <td>2021-05-15</td> <td>5</td> <td>5000</td> <td>3</td> </tr> </tbody> </table> <p>ii. Write an SQL statement to insert the one record in the table loan.</p>	LoanID	LoanDate	ID	EMI	Years	1101	2021-03-01	5	20000	4	1102	2021-02-06	3	10000	2	1103	2021-04-12	4	10000	3	1104	2021-05-15	5	5000	3	2+1=3
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1103	2021-04-12	4	10000	3																								
1104	2021-05-15	5	5000	3																								
32	A	Consider the following tables GAMES and PLAYER. Write SQL commands for the statements i to iii.	3																									

Table: GAMES

GCode	GameName	Number	PrizeMoney	ScheduleDate
101	Carom Board	2	5000	23-Jan-2004
102	Badminton	2	12000	12-Dec-2003
103	Table Tennis	4	8000	14-Feb-2004
105	Chess	2	9000	01-Jan-2004
108	Lawn Tennis	4	25000	19-Mar-2004

Table: PLAYER

PCode	Name	Gcode
1	Nabi Ahmad	101
2	Ravi Sahai	108
3	Jatin	101
4	Nazneen	103

- i. To display the content of the GAMES table in descending order of ScheduleDate.
- ii. To display NUMBER wise total prizemoney.
- iii. To display player name along with their corresponding PRIZEMONEY.

OR

Consider the tables Faculty and Batch given below and the write the output of the following queries from i to iii.

Table : Faculty

F_Id	FacName	DoJ	Qualification	Salary
Emp01	Neeta Khanna	2013-07-01	MCA	85000
Emp02	Sonia Chawla	2023-05-05	MA	35000
Emp03	Sheetal	2015-06-28	MSc	90000
Emp04	Bindu	2016-03-30	M.Com	80000
Emp05	Sunidhi	2002-06-28	BA	100000
Emp06	Ashish	1999-07-01	B.Com	120000

Table : Batch

Batchid	BatchName	F_Id	Daysperweek	Subjects
B01	TXAlpha	Emp01	3	English
B02	TXBeta	Emp05	5	Chemistry
B03	TXGama	Emp02	4	Physics
B04	Super30	Emp03	3	Mathematics
B05	G-20	EMp04	2	Economics
B06	LXAlpha	Emp01	4	Accountancy

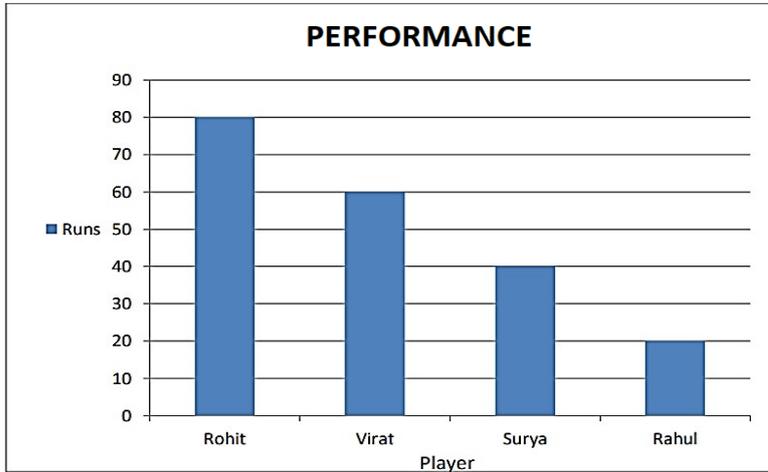
- i. SELECT MIN(SALARY) ,MAX(SALARY) FROM FACULTY;
- ii. SELECT F.FACNAME, F.QUALIFICATION, B.SUBJECTS FROM FACULTY F, BATCH B WHERE F.DOJ<'2015-01-01';
- iii. SELECT RIGHT(SUBJECTS,4) FROM BATCH;

Section-D (2 X 4 = 8 Marks)

33

Fill up the following Python code to plot a bar chart for Indian player performance in a match as per given chart:

4



```
import _____ as plt           #statement 1
Player=['Rohit','Virat','Surya','Rahul']
Runs=[80,60,40,20]
plt.bar(Player, _____)       #statement 2
plt. _____ ('Runs')          #statement 3
plt. _____ ('Player')        #statement 4
plt.title('PERFORMANCE')
plt.show()
```

34

A. Consider the following table named FAN.

FAN_ID	FAN_NAME	FAN_CITY	FAN_DOB	FAN_MODE
F001	SUSHANT	MUMBAI	1998-10-02	MAIL
F002	RIYA	MUMBAI	1997-12-12	LETTER
F003	ANIKA	DELHI	2001-06-30	BLOG
F004	RUDRA	AJMER	2005-08-22	MAIL
F006	MIARA	KOLKATTA	1998-11-01	BLOG

- i. Write SQL statement to display details of FAN in the MUMBAI city.
- ii. Write SQL statement to display the number of fans in citywise.
- iii. Write SQL statement to display the details of fan in the descending order of FAN_DOB;
- iv. Write SQL statement to display to display last 2 characters of FAN_ID.

OR

B. Consider the following table named TEACHER.

TID	TNAME	SUBJECT	EXPERIENCE
1	GANESH	PHYSICS	2
2	NEELESH	HISTORY	4
3	JOHNY	CHEMISTRY	NULL
4	DEVAKUMAR	CHEMISTRY	4
5	TONY	PHYSICS	2

Write the output of the following SQL queries.

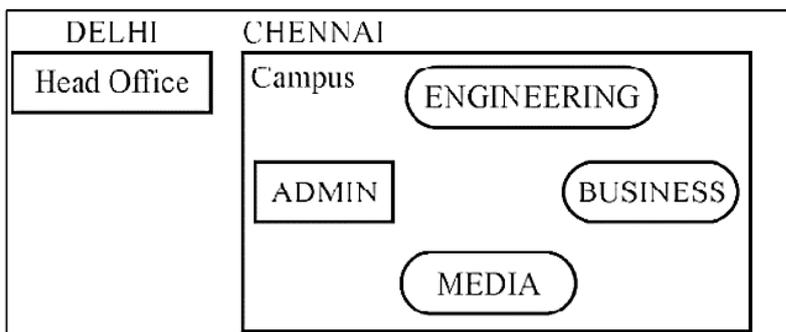
- i. SELECT COUNT(EXPERIENCE) FROM TEACHER;
- ii. SELECT TNAME,SUBJECT FROM TEACHER
WHERE EXPERIENCE>3;
- iii. SELECT LEFT(TNAME,4),SUBJECT FROM TEACHER;
- iv. SELECT LCASE(RIGHT(SUBJECT,2)) AS "SUB" FROM TEACHER;

Section-D (3 X 5 = 15 Marks)

35

Meticulous EduServe is an educational organization. It is planning to setup its India campus at Chennai with its head office at Delhi. The Chennai campus has 4 main buildings – ADMIN, ENGINEERING, BUSINESS and MEDIA

5



Block to Block distances (in Mtrs.)

From	To	Distance
ADMIN	ENGINEERING	55 m
ADMIN	BUSINESS	90 m
ADMIN	MEDIA	50 m
ENGINEERING	BUSINESS	55 m
ENGINEERING	MEDIA	50 m
BUSINESS	MEDIA	45 m
DELHI HEAD OFFICE	CHENNAI CAMPUS	2175 km

Number of computers in each of the blocks/Center is as follows:

	<table border="1" data-bbox="252 85 635 286"> <tr> <td>ADMIN</td> <td>110</td> </tr> <tr> <td>ENGINEERING</td> <td>75</td> </tr> <tr> <td>BUSINESS</td> <td>40</td> </tr> <tr> <td>MEDIA</td> <td>12</td> </tr> <tr> <td>DELHI HEAD</td> <td>20</td> </tr> </table> <p data-bbox="284 331 1204 772"> i. Suggest and draw the cable layout to efficiently connect various blocks of buildings within the CHENNAI campus for connecting the digital devices. ii. Which network device will be used to connect computers in each block to form a local area network? iii. Which block, in Chennai Campus should be made the server? Justify your answer. iv. Which fast and very effective wireless transmission medium should preferably be used to connect the head office at DELHI with the campus in CHENNAI? v. Is there a requirement of a repeater in the given cable layout? Why/ Why not? </p>	ADMIN	110	ENGINEERING	75	BUSINESS	40	MEDIA	12	DELHI HEAD	20											
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36	<p data-bbox="239 813 794 846">Consider the following Data Frame sports:</p> <table border="1" data-bbox="263 884 683 1064"> <thead> <tr> <th></th> <th>ID</th> <th>NAME</th> <th>GENDER</th> </tr> </thead> <tbody> <tr> <td>SD1</td> <td>1</td> <td>ARUNA</td> <td>F</td> </tr> <tr> <td>SD2</td> <td>2</td> <td>RAHUL</td> <td>M</td> </tr> <tr> <td>SD3</td> <td>3</td> <td>SAKSHI</td> <td>F</td> </tr> <tr> <td>SD4</td> <td>4</td> <td>RAMAN</td> <td>M</td> </tr> </tbody> </table> <p data-bbox="284 1070 1141 1288"> i. Predict the output of the following python statement: sports. shape ii. Write command to Add a new row with values(5, SAM, M): iii. Write python statement to delete column Gender. iv. Write python statement to delete the row with index SD3. v. Write python statement to add one column CATEGORY. </p>		ID	NAME	GENDER	SD1	1	ARUNA	F	SD2	2	RAHUL	M	SD3	3	SAKSHI	F	SD4	4	RAMAN	M	
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SD3	3	SAKSHI	F																			
SD4	4	RAMAN	M																			
37	<p data-bbox="239 1328 906 1361">A Write suitable SQL query for the following:</p> <p data-bbox="391 1361 1204 1653"> i. Display 5 characters extracted from 3th left character onwards from the string 'INDIA RISING'. ii. Display the position of occurrence of string 'FUNDA' in the string 'PYTHON FUNDAMENTALS'. iii. Round off the value 453.668 to two decimal place. iv. Display the remainder of 120 divided by7. v. Remove all the expected leading and trailing spaces from a column student_id of the table 'student'. </p> <p data-bbox="821 1691 869 1724" style="text-align: center;">OR</p> <p data-bbox="239 1724 1141 1758">B Explain the following SQL functions using suitable examples.</p> <p data-bbox="391 1803 702 1977"> i. LCASE() ii. TRIM() iii. SUBSTR() iv. MONTHNAME() v. MOD() </p>	5																				