Roll No._____ **Series JPR_PB/25-26/12/065/SET No.7**

NOTE:

- Please check that this question paper contains 11 printed pages.
- Please check that this question paper contains 37 questions.
- Please write down the serial number of the question in the answer book before attempting it.
- 15 minutes time has been allotted to read the question paper. The students will read the question paper only and not write any answer on the answer-book during this period.

CLASS XII
INFORMATICS PRACTICES (065)

Time Allowed: 3 Hrs. **Maximum Marks:70**

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: The del statement can remove the rows as well as columns in a data frame	1
2	What will be the result of the following SQL query? SELECT POW(5,MOD(5,5)) ; (A) 1 (B) 5 (C) 0 (D) 25	1
3	Stealing someone's intellectual work and representing it as another person's work is known as _____. (A) Phishing (B) Spamming (C) Plagiarism (D) Hacking	1

4	Which of the following Python statements is used to read a Pandas DataFrame df from a CSV file?Note:(let df is a pandas object) (A) df.to_csv("file location") (B) df.read_csv("file location") (C) df.csv_read("file location") (D) df.read("file location")	1
5	Which of these is not a part of URL? (A) DNS (B) Domain Name (C) Cookies (D) None of these	1
6	In SQL, which function is equivalent to MID()? (A) UPSTRING() (B) SUBSTRING() (C) NOSTRING() (D) INSTRING()	1
7	The term Intellectual property rights cover (A) Trademark (B) Copyright (C) Patents (D) All of these	1
8	What will be the output of following code: import pandas as pd a=pd.Series([2,3,4,5]) b=pd.Series([5,6,7,8,9]) c=a+b print(c)	1

(A)	(B)	(C)	(D) Error
0 7 1 9 2 11 3 13 4 NaN dtype: float64	0 7.0 1 9.0 2 11.0 3 13.0 4 0 dtype: float64	0 7.0 1 9.0 2 11.0 3 13.0 4 NaN dtype: float64	

9	Consider a table named Students that has one primary key and three alternate keys. How many candidate keys does the table have? (A) 4 (B) 2 (C) 3 (D) 1	1
10	Network devices that sends the data over optimizing path through connected hops is _____ (A) Hub (B) Router (C) Gateway (D) Bridge	1
11	Which of the following SQL function is used to count the non-NULL values in a column named column_name? (A) COUNT(*) (B) COUNT(column_name) (C) SUM(column_name) (D) AVG(column_name)	1
12	Given a Pandas series called p_series, the command which will display the last 4 rows is _____ (A) print (p_series.Tail(4)) (B) print (p_series.tails(4)) (C) print (p_series.tail(4)) (D) print (p_series.Tails(4))	1
13	In India, the primary law that deals e-commerce and cybercrime is (A) Cybercrime Prevention Act, 2000 (B) Digital Security Act, 2000 (C) Information Technology Act, 2000 (D) E-Commerce Regulation Act, 2008	1
14	Find the output for the below sql statement: Select substr("BoardExam@2025", 4, 7); (A) rdExam@ (B) dExam@2 (C) rdExam (D) rdExam@2	1
15	Which of the following Python commands selects the first 3 rows of a DataFrame df, assuming that labelled index are consecutive integers starting from 0? (A) df.loc[:3]	1

	(B) df.loc[:2] (C) df.loc[0:4] (D) df.loc[1:4]	
16	In which network topology each node is directly connected to server? (A) Ring (B) Tree (C) Star (D) Bus	1
17	Which of the following function is the correct syntax of LCASE() function? (A) LCASE(row_name) (B) LCE(column_name) (C) LCASE(string/column_name) (D) None of the above	1
18	Which of the following Python statements creates an empty Pandas DataFrame (Note: pd is an alias for pandas)? (A) pd.DataFrame(None) (B) pd.Dataframe() (C) pd.DataFrame([]) (D) pd.DataFrame.empty()	1
19	Gopi Krishna is using a table Employee. It has the following columns: Code, Name, Salary, Deptcode He wants to display average salary department wise of those departments which have more than six employees.He wrote the following command: SELECT Deptcode, avg(Salary) FROM Employee ; But he did not get the desired result. Which of the following is a correct query to perform the given task? (A) SELECT Deptcode, avg(Salary) FROM Employee WHERE count(*) > 6 GROUP BY Deptcode ; (B) SELECT Deptcode, avg(Salary) FROM Employee HAVING count(*) > 6 GROUP BY Deptcode ; (C) SELECT Deptcode, avg(Salary) FROM Employee GROUP BY Deptcode WHERE count(*) > 6; (D) SELECT Deptcode, avg(Salary) FROM Employee GROUP BY Deptcode HAVING count(*) > 6;	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 does not correctly explain A. (C) A is True, but R is False. (D) A is False, but R is True.		
20	Assertion (A): - Series is a one-dimensional labeled array capable of holding data of any type. Reason(R):- Series has both row and column values.		1
21	Assertion (A): The UPDATE command is a DML (Data Manipulation Language) command. Reason (R): DML commands are used to insert, update or delete the data stored in a database.		1
Q No.	Section-B (7X2 = 14 Marks)		Marks
22	(A)	List any two differences between Dataframe and 2D Ndarrays in pandas. OR	2
	(B)	List any two differences between Series and Dataframe in Pandas.	
23	List any four benefits of e-waste management		2

24	What will be the output of the following code:
	>>> import pandas as pd
	>>> mydata=pd.Series([‘rajesh’, ‘amit’, ‘tarun’, ‘Radhika’])
	>>> print(mydata < ‘rajesh’)
			2

25	(A)	What are browser add-ons? Provide the name of two web browsers that support add-ons. **OR**	2
	(B)	Differentiate between a Static and Dynamic Website.	

26	Considering the string “Preoccupied” Write SQL commands to display: i. the position of the substring ‘cup’ in the string “Preoccupied” ii. the first 4 letters of the string “Preoccupied”		2
27	What is the difference between copyright and Patent?		2
28	(A)	What will be the output of the following ? import pandas as pd x= [20, 40,90, 110] y=pd.Series([20, 40,90, 110]) print (x*2) print(y*2) OR	2
	(B)	Predict the output of python code based on series import pandas as pd dt2= {'A':1,'B':10,'C':100} sr2=pd.Series(dt2) print(sr2.size) print(sr2.dtype)	

Q No	Section-C (4X3 = 12 Marks)	Marks
29	Rahul has recently invented a new type of solar-powered water purification system and is concerned about the possibility of someone illegally copying and selling his invention without his permission. I. Explain Rahul the terms Intellectual Property & Intellectual Property Rights (IPR). II. Under which specific category of IPR is Rahul's invention covered? III. Describe the importance of IPR in safeguarding innovations.	3

30 (A) Write a Python code to create a DataFrame with appropriate column headings from the list given below: **[[1001,'IND-AUS', '2022-10-17'], [1002,'IND-PAK', '2022-10-23'], [1003,'IND-SA', '2022-10-30'], [1004, 'IND-NZ', '2022-11-18']]** — 3

OR

(B) Write a program to create a series object using a dictionary that stores the number of Kendriya Vidyalayas in each city of cities of your state.

Note: Assume some cities like JAIPUR, AJMER, JODHPUR, UDAIPUR having 7, 2, 3, 2 KVs respectively and pandas library has been imported as mypandas.

31 Write MySQL statements for the following: — 1+2=3

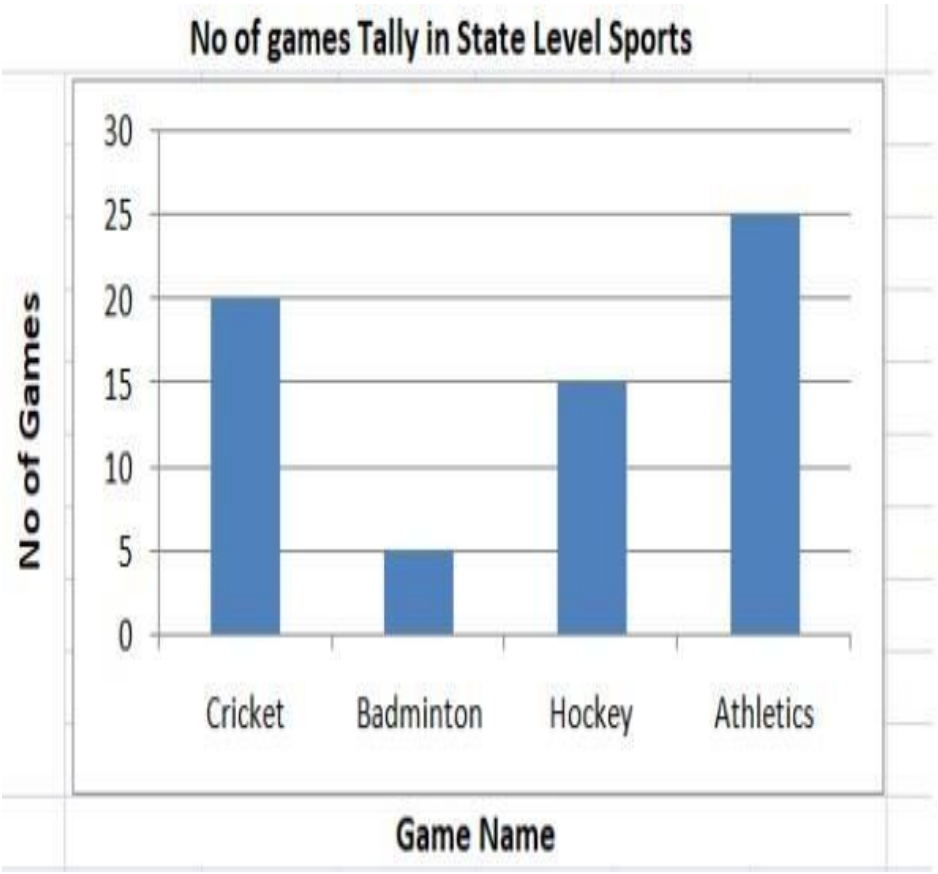
(A) Create a database "BOOKS".

(B) Create a table Bookdetail using given description

Field Name	Data Type	Constraints
Bno	Integer(4)	Primary Key
Bname	Varchar(20)	Not Null
Author	Varchar(30)	
Price	Float (4,2)	

32 Based on table STOCK given here, write suitable SQL queries for the following: — 3

STOCKID	NAME	COMPANY	TYPE	DOPURCHASE	Quantity
1	Photoshop	Adobe	SW	5-Oct-2022	1
2	Windows 10	Microsoft	SW	15-Apr-2021	5
3	Mother Board	ASUS	HW	8-Sep-2022	5
4	Office 2007	Microsoft	SW	8-Jul-2022	2
5	Hard Disk	Seagate	HW	6-Feb-2021	10
6	Azure	Microsoft	SW	17-Jul-2022	6
7	CD ROM	Seagate	HW	31-Jul-2021	5
8	Reader	Adobe	SW	28-Aug-2022	2

	i) Display company wise highest Quantity available ii) Display year wise lowest Quantity available iii) Display total number of Software and Hardware type stock OR (only part iii) Explain the difference between WHERE CLAUSE and HAVING CLAUSE with the helpof suitable example.	
Q No.	Section-D (2X4 = 8 Marks)	Marks
33	Write Python code to plot a bar chart for No of Games Tally in State Level Sports shown below. Also write suitable python statement to save this chart 	3+1=4

34	Harsh, a movie information collector has designed a database for Indian movies. Help him by writing answers of the following questions based on the given table MOVIE:	4

movieID	Name	Rating	Production	Collection	DORelease
201	Nadiya Ke Par	A+	Rajshree	400	15-Aug-1989
202	Hum Aapke Hain Kaun	A+	Dharma	1500	4-May-1992
203	Veer Zara	A	Yashraj	1100	25-Oct-2004
204	Chandni	A+	Yashraj	2000	8-Nov-1989
205	Om Shanti Om	A	Red Chillies	2007	14-Nov-2007

i) Write a query to display movie name and production – both in upper case

ii) Write a query to display all details of movies released in year 1989

iii) Write a query to count production wise total number of movies

iv) Write a query to count rating wise total number of movies

OR

Consider the following table and write the output of the following SQL Queries.**Table : Student**

StudentID	Name	DateofBirth	Marks	City
301	Aryan	15-03-2005	88	Delhi
302	Ayesha	NULL	90	NULL
304	Aditi	NULL	85	Pune
305	Rajesh	11-01-2006	72	NULL
306	Maria	29-04-2005	95	Chennai

Write the output of the following SQL Queries.

I. **SELECT Name, LENGTH(Name) FROM Student WHERE StudentID < 303;**

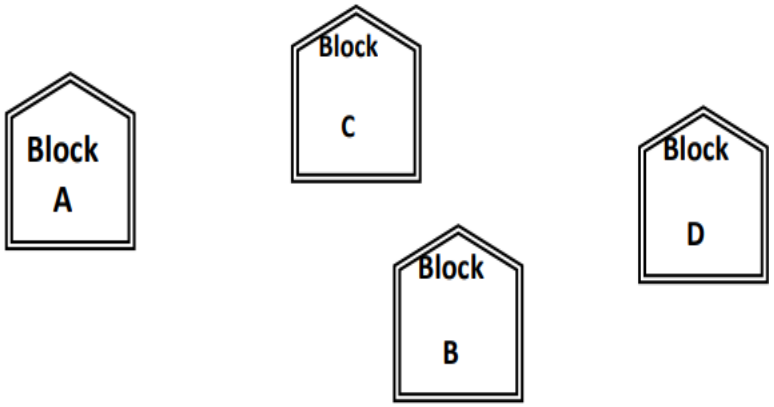
II. **SELECT lower(Name) FROM Student WHERE MONTH(DateofBirth)= 3;**

III. **SELECT AVG(Marks) FROM Student;**

IV. **SELECT Name, Marks FROM Student WHERE Marks BETWEEN 90 AND 100;**

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

35	Knowledge Supplement Organization has set up its new center at Mangalore for itsoffice and web based activities. It has 4 blocks of buildings as shown in the diagram below:	5



distances between various blocks

Black A to Block B	50 m
Block B to Block C	150 m
Block C to Block D	25 m
Block A to Block D	170 m
Block B to Block D	125 m
Block A to Block C	90 m

Number of Computers

Black A	25
Block B	50
Block C	125
Block D	10

i) Suggest a cable layout of connections between the blocks.

ii) Suggest the most suitable place (i.e. block) to house the server of this organization with a suitable reason.

iii) Suggest the placement of the following devices with justification

(a) Repeater
(b) Hub / Switch

iv) The organization is planning to link its front office situated in the city in a hilly region where cable connection is not feasible, suggest an economic way to connect it with reasonably high speed?

v) VoIP technology is to be used which allows one to make voice calls using a broadband internet connection. Expand the term VoIP.

36	Consider the Dataframe Doctor shown bellows |	DID	Name	Department	Fee
---	---	---	---	---
0	101	Dr. Joe	ENT	1500
1	102	Dr. Salma	UROLOGY	1600
2	103	Dr. Jeet	ORTHO	1550
3	104	Dr. Neha	ENT	1200
4	105	Dr. Vikram	ORTHO	1700 | Write the suitable python statements for following i. To display the names of all doctors ii. To add a new column 'Discount' with value of 200 for all doctors iii. To display rows with index 2 and 3 iv. To delete the column Department v. To change the name of Dr. Jeet to Jeet Ram and Dr.Vikram to Vikram Singh	5
37	(A) Write suitable SQL query for the following: i. Display 4 characters extracted from 3rd character onwards from string 'IMPOSSIBLE'. ii. Display the position of occurrence of string 'GO' in the string "LET's GO to GOA". iii. Round off the value 257.75 to nearest ten rupees. iv. Display the remainder of 18 divided by 5. v. Remove all the leading and trailing spaces from a column passwd of the table 'USER' OR (B) Write suitable SQL queries for the following: i. To find the remainder of 13 divided by 5. ii. To round off the value 12345.6789 to make it 1230 iii. To extract the month value from the date '2023-07-23'. iv. To find the occurrence of 'b' from the text 'sarve bhavantu sukhinah' v. To extract last four characters from the text 'sarve santu niramaya'	5