

Kendriya Vidyalaya Sangathan, Chandigarh Region

Pre-Board Examination - II (2024 - 25)

Class: XII

Subject: Informatics Practices (065)

Time Allowed: 3 Hrs

Maximum Marks: 70

Instructions:

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	SECTION-A	M
1	To display last five rows of a series object 'S', you may write: a) S.Head() b) S.Tail(5) c) S.Head(5) d) S.tail()	1
2	Which command will be used to delete 3 and 5 rows of the data frame. Assuming the data frame name as DF. a. DF.drop([2,4],axis=0) b. DF.drop([2,4],axis=1) c. DF.drop([3,5],axis=1) d. DF.drop([3,5])	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 based function and iloc() integer position based function. d. loc() is integer position based function and iloc() index position based function.	1
4	Rajni has recently shifted to a new city and new school. She does not know many people in her new city and school. But all of a sudden , someone is posting negative, demeaning comments on her social networking profile site forum etc. Every time she goes online , she finds someone chasing her online. What action should she taken to stop them?	1
5	Write python statement to show values greater than 15 from the given series S S 57 12 93	1
6	Out of the following, which function cannot be used for customization of charts in Python? a. xlabel() b. colour() c. title() d. xticks()	1
7	Which graph should be used where each column represents a range of values, and the height of a column corresponds to how many values are in that range? a. plot b. line c. bar d. histogram	1
8	Write two features of OSS?	1

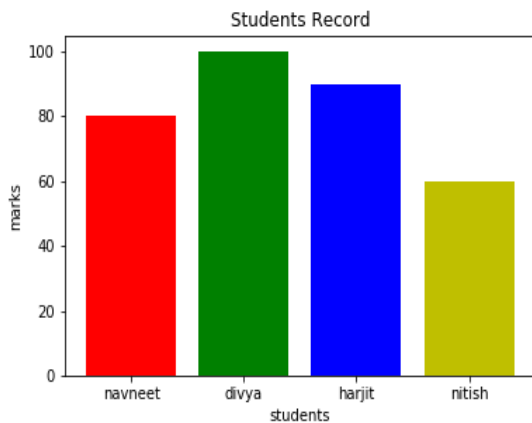
9	e-waste refers to: (a) Software that has become obsolete (b) Viruses that infect computers (c) Data that has been deleted from a storage device (d) Electronic devices that are no longer in use	1																				
10	Which of the following is NOT true with respect to CSV Files? a) Values are separated by Commas. b) to_csv() can be used to save a dataframe to 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 command will not show first five rows form Panda Series named S1 a) S1[0:5] b) S1.head() c) S1.head(5) d) S1.head[0:5]	1																				
12	A table Student in MySQL contains a column Gender. Write Domain for Gender column?	1																				
13	Which of the following is not a DML command? (a) DROP (b) DELETE (c) UPDATE (d) INSERT	1																				
14	Match the following SQL functions/clauses with their descriptions: <table><tr><th colspan="2">SQL Function</th><th colspan="2">Description</th></tr><tr><td>P</td><td>MAX()</td><td>1</td><td>Find the position of a substring in a string</td></tr><tr><td>Q</td><td>SUBSTRING()</td><td>2</td><td>Returns the maximum value in a column</td></tr><tr><td>R</td><td>INSTR()</td><td>3</td><td>Sorts the data based on a column</td></tr><tr><td>S</td><td>ORDER BY</td><td>4</td><td>Extracts a portion of a string.</td></tr></table> (A) P-2, Q-4, R-3, S-1 (B) P-2, Q-4, R-1, S-3 (C) P-4, Q-3, R-2, S-1 (D) P-4, Q-2, R-1, S-3	SQL Function		Description		P	MAX()	1	Find the position of a substring in a string	Q	SUBSTRING()	2	Returns the maximum value in a column	R	INSTR()	3	Sorts the data based on a column	S	ORDER BY	4	Extracts a portion of a string.	1
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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	Mention two health concerns associated with excessive use of Digital Devices.	1																				
18	Identify Topology: a) A central hub/switch required to connect all computers with each other and no collision take place through transmission of data. b) A long cable known as backbone is used to connect all computer with each other and data is sent through this long cable from the sender to receiver and chance of collision take place through data transmission.	1																				
19	Stealing someone else’s intellectual work and representing it as own is called____ a) Intellectual steal b) Pluckism c) Copy Right (d) Plagiarism	1																				

	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): We can add a new column in an existing DataFrame. Reason (R): DataFrames are size mutable.	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 What does the term 'library' signify in Python? Mention one use for each of the following libraries: (a) Pandas (b) Matplotlib	2																
23	What is Internet and how does it differ from World Wide Web (WWW)? OR Explain the concept of browser cookies and mention one advantage of using them.	2																
24	Write two differences between Primary Key and Unique Constraint	2																
25	Consider the string: "CORPORATE WORLD". Write SQL queries for the following: i) To extract and display "RATE" from the string. ii) Display the position of the first occurrence of "OR" in the given string.	2																
26	Consider the following Python code : <pre>import pandas as pd s1=pd.Series(['ram','sham','sita'],index=[10,16,18]) s2=pd.Series(_____,index=[10,16,18]) s3=pd.Series(['85','95','80'],_____) xiia={'name':_____, 'subject':s2, 'marks':s3} df=pd.DataFrame(_____) print(df)</pre> Consider the above Python code to display following output: <table><tr><th></th><th>name</th><th>subject</th><th>marks</th></tr><tr><td>10</td><td>ram</td><td>IP</td><td>85</td></tr><tr><td>16</td><td>sham</td><td>CS</td><td>95</td></tr><tr><td>18</td><td>sita</td><td>IT</td><td>80</td></tr></table> OR Carefully observe the following code and write the output: <pre>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)</pre>		name	subject	marks	10	ram	IP	85	16	sham	CS	95	18	sita	IT	80	2
	name	subject	marks															
10	ram	IP	85															
16	sham	CS	95															
18	sita	IT	80															

27	a. _____ is a specific software component which adds a specific feature to an existing software such as browser b. _____ embedded codes within dynamic webpages that executes at the client’s browser and make website look different at every time	2																																																																																	
28	What are intellectual property rights (IPR), and why are they important in the digital world?	2																																																																																	
	SECTION-C																																																																																		
29	Write MySQL Queries for (i) to (iii) on Customer and Bank tables CUSTOMER <table><tr><th>Accountno</th><th>Cname</th><th>Age</th><th>Gender</th><th>Balance</th><th>Accountcode</th></tr><tr><td>101</td><td>S K YADAV</td><td>62</td><td>M</td><td>80000</td><td>7777</td></tr><tr><td>102</td><td>VIBA MISHRA</td><td>22</td><td>F</td><td>90000</td><td>9999</td></tr><tr><td>103</td><td>DIDAR SINGH</td><td>32</td><td>M</td><td>75000</td><td>7777</td></tr><tr><td>104</td><td>M SHARMA</td><td>12</td><td>M</td><td>79000</td><td>NULL</td></tr><tr><td>105</td><td>SIMI ARORA</td><td>30</td><td>F</td><td>97000</td><td>8888</td></tr><tr><td>106</td><td>DAYAL SONI</td><td>16</td><td>M</td><td>68000</td><td>9999</td></tr></table> BANK <table><tr><th>Accountcode</th><th>Accounttype</th><th>Interestrates</th><th>Minbalance</th></tr><tr><td>7777</td><td>SAVING</td><td>7.5</td><td>1000</td></tr><tr><td>8888</td><td>LOAN</td><td>12.5</td><td>NULL</td></tr><tr><td>9999</td><td>CURRENT</td><td>4.8</td><td>5000</td></tr></table> (i) Count no. of customers in each gender. (ii) Show Customer Name , Accounttype of customers whose Balance is more than 70000 (iii) Show Details of male Customers in descending order of Balance. OR In a database Real_Estate , two tables are given below:- Developer <table><tr><th>Dcode</th><th>Dname</th></tr><tr><td>1</td><td>Rahul</td></tr><tr><td>2</td><td>Manish</td></tr><tr><td>3</td><td>Faizan</td></tr></table> HOUSE <table><tr><th>HID</th><th>Location</th><th>Quantity</th><th>Unit_Price</th><th>Dcode</th></tr><tr><td>H1</td><td>Raipur</td><td>10</td><td>500000</td><td>1</td></tr><tr><td>H2</td><td>Bilaspur</td><td>20</td><td>300000</td><td>2</td></tr></table>	Accountno	Cname	Age	Gender	Balance	Accountcode	101	S K YADAV	62	M	80000	7777	102	VIBA MISHRA	22	F	90000	9999	103	DIDAR SINGH	32	M	75000	7777	104	M SHARMA	12	M	79000	NULL	105	SIMI ARORA	30	F	97000	8888	106	DAYAL SONI	16	M	68000	9999	Accountcode	Accounttype	Interestrates	Minbalance	7777	SAVING	7.5	1000	8888	LOAN	12.5	NULL	9999	CURRENT	4.8	5000	Dcode	Dname	1	Rahul	2	Manish	3	Faizan	HID	Location	Quantity	Unit_Price	Dcode	H1	Raipur	10	500000	1	H2	Bilaspur	20	300000	2	3
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	<table><tr><td>H3</td><td>Bargarh</td><td>15</td><td>200000</td><td>3</td></tr><tr><td>H4</td><td>Ambikapur</td><td>25</td><td>250000</td><td>2</td></tr><tr><td>H5</td><td>Raipur</td><td>25</td><td>280000</td><td>2</td></tr><tr><td>H6</td><td>Bilaspur</td><td>20</td><td>240000</td><td>1</td></tr></table> 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.	H3	Bargarh	15	200000	3	H4	Ambikapur	25	250000	2	H5	Raipur	25	280000	2	H6	Bilaspur	20	240000	1				
H3	Bargarh	15	200000	3																					
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H6	Bilaspur	20	240000	1																					
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. <table><tr><td></td><td>NAME</td><td>PERCENTAGE</td></tr><tr><td>0</td><td>RAM</td><td>95</td></tr><tr><td>1</td><td>SHAM</td><td>65</td></tr><tr><td>2</td><td>SITA</td><td>80</td></tr><tr><td>3</td><td>GITA</td><td>90</td></tr></table> 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. <table><tr><td>PUNJAB</td><td>CHANDIGARH</td></tr><tr><td>MP</td><td>BHOPAL</td></tr><tr><td>UP</td><td>LUCKNOW</td></tr><tr><td>RAJASTHAN</td><td>JAIPUR</td></tr></table>		NAME	PERCENTAGE	0	RAM	95	1	SHAM	65	2	SITA	80	3	GITA	90	PUNJAB	CHANDIGARH	MP	BHOPAL	UP	LUCKNOW	RAJASTHAN	JAIPUR	3
	NAME	PERCENTAGE																							
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UP	LUCKNOW																								
RAJASTHAN	JAIPUR																								
32	(i) Consider the structure of DEPT table and write command to create the table. <pre>+-----+-----+-----+-----+ Field Type Null Key +-----+-----+-----+-----+ deptno decimal(2,0) NO PRI dname varchar(14) YES loc varchar(13) YES +-----+-----+-----+-----+</pre>	2 + 1																							

	(ii) Write command to add new row with following data : 40, Admission, Chandigarh							
	SECTION -D							
33	Consider table PATIENT as given below and write MySQL queries for (i) to (iv)						4	
	PID	NAME	AGE	DEPARTMENT	DATEADM	CHARGES		SEX
	1	ARPIT	62	SURGERY	2022/12/25	1000		M
	2	ZARIN	22	ORTHO	2023/11/22	500		F
	3	KAREENA	32	CARDIOLOGY	2022/07/02	NULL		F
	4	ARUN	12	ENT	2023/02/25	800		M
	5	AMAR	30	SURGERY	2023/06/15	1200		M
	6	ZEBA	16	CARDIOLOGY	2022/08/17	400		F
	(i) Show Name , Age of patients female patients whose dateadm before year 2023 (ii) Show number of characters in the name of patients whose age is more than 50. (iii) Show name, age, charges and discount of all patients. Discount is 10% of Charges. (iv) Decrease the Charges by 100 of Surgery department patients. OR Write output for MySQL Queries (i) to (iv) based on Patient Table (i) SELECT NAME, AGE FROM PATIENT WHERE NAME LIKE ‘Z%A’; (ii) SELECT MONTHNAME(MAX(DATEADM)) FROM PATIENT; (iii) SELECT AGE,DEPARTMENT FROM PATIENT WHERE SEX=’F’ ORDER BY AGE DESC; (iv)SELECT NAME, AGE FROM PATIENT WHERE CHARGES IS NULL;							
34	Write Python code to create following graph. (also write statement to store this graph)						4	



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 display the average score from the test_results column (attribute) in the Exams table
- II. To display the last three characters of the registration_number column (attribute) in the Vehicles table. (Note: The registration numbers are stored in the format DL-01-AV-1234)
- III. To display the data from the column (attribute) username in the Users table, after eliminating any leading and trailing spaces.
- IV. To display the maximum value in the salary column (attribute) of the Employees table.
- V. To determine the count of rows in the Suppliers table.

OR

Write suitable SQL query for the following:

- I. Round the value of pi (3.14159) to two decimal places. 5
- II. Calculate the remainder when 125 is divided by 8.
- III. Display the number of characters in the word 'NewDelhi'.
- IV. Display the first 5 characters from the word 'Informatics Practices'.
- V. Display details from 'email' column (attribute), in the 'Students' table, after removing any leading and trailing spaces.

5

36

Consider the given DataFrame '**Book**':

	Name	Price
0	Nancy Drew	150

5

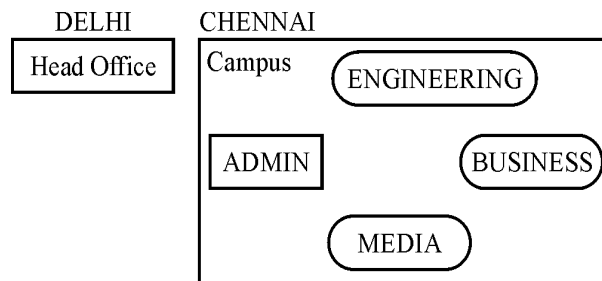
- 1 **Hardy boys** **180**
- 2 **Diary of a wimpy kid** **225**
- 3 **Harry Potter** **500**

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

37

Perfect Edu Services Ltd. 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.



Distances between various buildings :

ADMIN to ENGINEERING	135 m
ADMIN to BUSINESS	75 m
ADMIN to MEDIA	150 m
ENGINEERING to BUSINESS	55 m
ENGINEERING to MEDIA	110 m
BUSINESS to MEDIA	45 m
Delhi Head office to Chennai Campus	2175 km

Number of Computers in Each Block

ADMIN	110
ENGINEERING	175
BUSINESS	140
MEDIA	120
DELHI Head Office	110

- a) Suggest the most appropriate location of the server inside the CHENNAI campus (out of the 4 buildings), to get the best connectivity for maximum no. of computers. Justify your answer.

5

	b) Suggest and draw the cable layout to efficiently connect various buildings within the CHENNAI campus for connecting the computers. c) Which network will be formed Out of LAN/MAN/WAN/PAN when Chennai campus connected to Delhi Head Office. d) Which is the communication medium you will suggest to connect Chennai campus with Delhi Head Office e) Where will you install Hub / Switch in Chennai campus?	
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*****END OF QUESTION PAPER*****