INDIAN SCHOOL SOHAR

PREBOARD II EXAMINATION (2023-24)

INFORMATICS PRACTICES (065)

No of printed pages: 8

CLASS: XII **SET B** **MAX MARKS: 70**

DATE: 16 /01/2024 **TIME: 3 HOURS**

GENERAL INSTRUCTIONS:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 02 Long Answer 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.

SECTION A

1. Which of the following keyword in MySQL will eliminate duplicate values from a query result? 1

   a) UNIQUE b) DISTINCT c) DEFAULT d) CHECK

2. Which of the following network covers a geographical area like a city or a town? 1

   a) LAN b) WAN c) MAN d) PAN

3. Which of the following is not a text function in MySQL? 1

   a) LEFT( ) b) LENGTH( ) c) MID( ) d) SIGN( )

4. E-waste is becoming one of the fastest growing environmental hazards in the world today. If it is not properly treated or disposed of, it can cause serious health hazards. Therefore, the_____ has issued a formal set of guidelines for proper handling and disposal of e-waste. 1

   a) Waste from Electrical and Electronic Equipment (WEEE) b)Department of Information Technology (DIT)

   c) Information and Communications Technology (ICT) d)Central Pollution Control Board (CPCB)

5. Which of the following statement is wrong in the context of DataFrame? 1

   a) Two-dimensional, size is mutable. b) Can perform Arithmetic operations on rows and columns.

   c) Homogeneous tabular data structure. d) Can create DataFrame from Numpy ndarray.

6. Which of the following SQL query is used to retrieve rows from the "registration" table where the "email" column does not contain NULL values? 1

   a) SELECT * FROM registration WHERE email <> NULL;

   b) SELECT * FROM registration WHERE email IS NOT NULL;

   c) SELECT * FROM registration WHERE IS NOT NULL(email);

   d) SELECT * FROM registration WHERE email IS NULL;

7. Which of the following is an example of absolute URL? 1

   a) samplepaper-ip-class12 b) /Sample-Paper-2023/Samplepaper-ip-class12.html

   c) https://www.cbse.nic.in d) Both a and b

8. What will be the output of the SQL query? 1

SELECT CHAR(70,'65.6',67.3,'69.9');

a)FACE b) FBCE c) FBCD d) FACD

9. If a dataframe is created using list of dictionary, then the column labels are formed from _____ . 1

a) Union of keys of the dictionaries b) Intersection of the keys of the dictionaries

c) Union of values of the dictionaries d) Intersection of the values of the dictionaries

10. Stealing someone else's intellectual work and representing it as own is called _____ . 1

a) Identity theft b) Plagiarism c) Hacking d) Phishing

11. Which clause is used with "aggregate functions"? 1

a) SELECT b) GROUP BY c) WHERE d) COUNT

12. The legal term to describe the rights of a creator of original creative or artistic work is called _____. 1

a) Copyright b) Copyleft c) GPL d) Patent

13. Pushp, a student of class-XII, has been assigned a code to create a pandas series S1, as shown below: 1

```
a  100
b  200
c  300
d  400
e  500
dtype: int64
```

Help him to identify the correct statement that can be used to extract the value with the index 'c'.

a) print(S1[c]) b) print(S1(c)) c) print('S1' ['c']) d) print(S1 ['c'])

14. A free software provides_____. 1

a) Freedom to run the program for any purpose b) Freedom to study and adapt its needs

c) Free of cost but no freedom to redistribute d) Both a and b

15. Samarth is the hardware engineer of "Happy School". He has been given the task of installing a network in the school lab which has around 40 computers. After setting up the lab and internet in the lab, Samarth is now required to add the functionality of sound and graphics card on the web browser for students of multimedia class. Which browser tool /service can be used for the same? 1

a) Plug ins b) Add ons c) Control Panel d) Download Settings

16. Write the output of the following SQL query: 1

SELECT POW(SIGN(16), INSTR('HELLO', 'A'));

a) 1 b) 0 c) 4 d) NULL

Q17 and 18 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

17. ASSERTION(A): Digital footprint is the trail of data we leave behind when we visit any website (or use any online application or portal) to fill-in data or perform any transaction.

REASONING(R): While online, all of us need to be aware of how to conduct ourselves, how best to relate with others. 1

18. **ASSERTION (A)**: Pandas is an open source Python library which offers high performance, easy-to-use data structures and data analysis tools.

REASONING (R): Professionals and developers are using the Pandas library in Data Science and Machine Learning. 1

SECTION B

19. Email is a fast and efficient way to communicate with multiple users at the same time. 2
    i. Enumerate the protocols used in an email.
    ii. Differentiate between Spam and Junk Mail.

OR

Shahab, an apprentice has just started learning web technologies. Help him in understanding the difference between web hosting and web server with the help of a suitable example.

20. The Python code written below has syntactical errors. Rewrite the correct code and underline the corrections made. 2

```
import panda as pd
X = {'A':[10,20,10],'B' [5,10,20]}
section = pd.DataFrame(X,index:[1,2,3])
print(Section)
```

21. Consider the string: "Shutterstock" 2
    Write suitable SQL queries for the following:
    i. To display the string "ter".
    ii. To display the last five characters of the string "Shutterstock" in capitals.

22. Predict the output of the given Python code: 2

```
import pandas as p
list1= [1,2,3,4,5,6,7,8]
list2= ['swimming','tt','skating','kho kho', 'bb', 'chess', 'football','cricket']
school=p.Series(list1, index=list2)
print (school[-3:-1])
```

23. Rishi has just started using internet. Mention any four net-etiquette which he should follow in order to become a good netizen. 2

24. Complete the given Python code to get the required output as: **3** 2

```
import pandas as pd
import _______ as np
df =pd.DataFrame ([[1, 1, 1, np.NaN], [1,2,3,4]], _________= ['a','b', 'c', 'd'], _______ = ['one','two'])
print(df_____________)
```

25. Clarify the role of HAVING clause highlighting its distinctions from WHERE clause in SQL. 2

SECTION C

26. Based on the SQL table **TOY_SALES**, write suitable queries for the following: 3

T_no	Name	Company	Price	Qty
T001	Doll	Barbie	1200	10
T002	Car	Seedo_wheels	550	12
T003	Mini House	Barbie	1800	15
T004	tiles	Seedo_wheels	450	20
T005	Ludo	Seedo_wheels	200	24

i. Display the company wise least price for toys with quantity greater than or equal to 15.
ii. Count the number of toys manufactured by Barbie.
iii. Display the average price of all toys.

OR

Predict the output of the following queries based on the table TOY_SALES given above:

i. SELECT LEFT(COMPANY,2) FROM TOY_SALES WHERE NAME IN ('DOLL','LUDO');
ii. SELECT PRICE*QTY "TOT SALES" FROM TOY_SALES WHERE QTY BETWEEN 10 AND 15;
iii. SELECT MID(COMPANY, -5) FROM TOY_SALES WHERE QTY>20;

27. Ram has created a Pandas DataFrame **'Score'** as given below: 3

	Roll	Name	Marks
Sec A	115	Pavni	97.5
Sec B	236	Rishi	90.0
Sec C	307	Preet	96.5
Sec D	422	Paula	89.0

Help him to write codes to:

i. Create the DataFrame Score from a dictionary of Series.
ii. Display the details of Sec A and Sec C.

28. Suppose you already have "NUTRIFACTS" table in the "DIET" database, as described below: 3

Table Name: NUTRIFACTS
Column Name: FOOD_ITEM(VARCHAR)
Column Name: CHOLESTEROL(INT)
Column Name: FAT(INT)
Write SQL statements to perform the following tasks:

i. Change the datatype of "FAT" column to float and display the structure of the table.
ii. Remove the column CHOLESTEROL from the table.

29. Mr. Manoj who is a business man by profession faced the following situations. Identify the type of crime for each situation/incident happened to him. 3

i. He was constantly receiving abusive emails.
ii. His laptop was controlled by somebody in an unauthorized way.
iii. Is there any law in India to handle such issues? Discuss briefly.

OR

With reference to 3R's, describe three essential approaches to manage electronic waste. Also, provide practical examples of how individuals can actively participate in each approach.

30. Consider the given DataFrame 'Batsman': 3

	Bno	name	score1	score2
0	1	Sunil Grover	90	80
1	2	sourav ganguli	65	45
2	3	virat kohli	70	90
3	4	Rahul dravid	80	70

Write suitable Python statements for the following:

i. Add a new column 'FinalScore', where FinalScore is the sum of score1 and score2.

ii. Delete the first and last row details from the DataFrame.

iii. Change the name of column 'name' to 'Bname'.

Section D

31. Based on table **Salesman** given here, write suitable SQL queries for the following: 4

SNO	SNAME	SALARY	BONUS	DOJ
A01	AKASH	25000	106.25	2019-10-14
A02	ANKITA	15000	67.33	2012-08-23
B02	BINAYA	12500	52.41	2015-02-03
B03	NEESHA	35000	NULL	2012-10-08
C07	LALITA	10600	45.78	2021-03-17

i. Display the name and bonus of all salesman after rounding off to 1 decimal place.

ii. Display the name and bonus of all salesman joined in the month October. If the bonus is not mentioned replace it with a text 'Not Assigned'.

iii. Display the total salary of all salesmen joined on Monday.

iv. Display the year of join of the senior most employee.

32. Zeenat has created the following DataFrame **Df1** to keep track of the Names, Marks and Grades of her class students: 4

	Name	Marks	Grade
101	Shubrao	77.90	B
102	Krishna	60.40	NaN
103	Pranshu	86.57	A
104	Gurpreet	70.67	B

i. Write the output of: a.) print(Df1.count(1)) b.) print(len(Df1))

ii. Display the 2nd and 3rd row details from the DataFrame.

iii. Display the name of students whose marks are in range of 70 to 80.

OR

(Option for part iii only)

Assume that the above DataFrame Df1 is exported to a CSV file named 'Student.csv' stored at 'D: drive'. Write suitable Python statement to import the CSV file back to a DataFrame named 'S1' with new column headings as 1,2,3.

SECTION E

33. Write suitable SQL queries for the following: 5

i. To remove the character ‘s’ present at the end of the 'Sname' column values of the 'Salesman' table.

ii. To display the day of month of the current date.

iii. To truncate the value 136.72 to ten’s place.

iv. To display the number of characters in the string ‘Academics’.

v. To compute the remainder of 100 and 3.

OR

Consider the tables given:

Table: PARTICIPANT

ADMNO	NAME	HOUSE	ACTIVITY_CODE
6473	Kapil Shah	Gandhi	A105
7134	Joy Mathew	Bose	A101
8786	Saba Khan	Gandhi	A102
6477	Kapil Shah	Bose	A101
7658	Faizal Ahmed	Bhagat	A104

Table: ACTIVITY

ACTIVITY_CODE	ACTIVITY_NAME	POINTS
A101	Running	200
A102	Hopping bag	300
A103	Skipping	200
A104	Bean bag	250
A105	Obstacle	350

Write suitable SQL queries to:

i. Display the activity name and the number of participants participating in each activity.

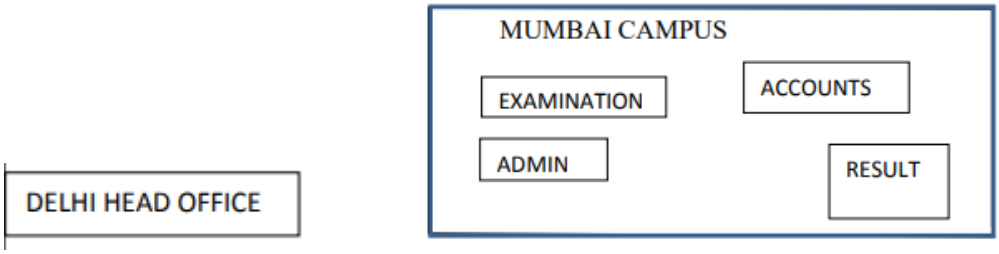
ii. Display the name of participants and their activity names in descending order of the name of participants.

iii. Display the names of participants along with their activity codes and activity names of those participants who are taking part in activities that have ‘bag’ in their activity names and points above 250.

iv. Display the houses with 2 participants.

v. When the table “PARTICIPANT” was first created, the column ‘NAME’ was planned as the primary key by the programmer. Later a field ADMNO had to be set up as primary key. Explain the reason.

34. Alpha Computer Services Ltd. is an international educational organization. It is planning to set up its India campus at Mumbai with its head office in Delhi. The Mumbai office campus has four main buildings- ADMIN, ACCOUNTS, EXAMINATION and RESULT. 5



You as a network expert have to suggest the best network related solutions for their problems raised in (i) to (v), keeping in mind the distances between the buildings and other given parameters.

Shortest distances between various buildings:

ADMIN TO ACCOUNTS	55 m
ADMIN TO EXAMINATION	90 m
ADMIN TO RESULT	50 m
ACCOUNTS TO EXAMINATION	55 m
ACCOUNTS TO RESULT	50 m
EXAMINATION TO RESULT	45 m
DELHI Head Office to MUMBAI campus	2150 m

Number of computers installed at various buildings are as follows:

ADMIN	110
ACCOUNTS	75
EXAMINATION	40
RESULT	12
DELHI HEAD OFFICE	20

i. Suggest the most appropriate location of the server inside the MUMBAI campus to get the best connectivity for maximum number of computers. Justify your answer.

ii. Suggest and draw cable layout to efficiently connect various buildings within the MUMBAI campus for a wired connectivity.

iii. Suggest the placement of the following devices with justification. (a) Repeater (b) Hub /Switch

iv. Which device can be used to connect the network of Mumbai campus to internet? This device should be able to receive data, analyze it and then transmit it to the network.

v. Company is planning to get its website designed which will allow students to see their results after registering themselves on its server. Out of the static or dynamic, which type of website will you suggest?

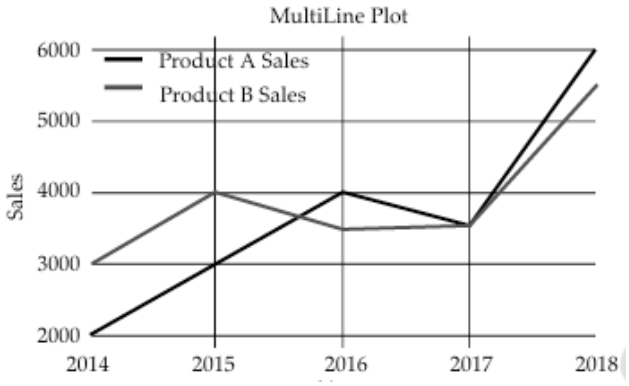
35. District wise total number of houses are represented in the following table: 5

Dist VII	Dist VIII	Dist IX	Dist X
40	45	35	44

Draw a horizontal bar graph in grid view representing the number of houses in each District (Dist VII,Dist VIII, Dist IX, Dist X). Give appropriate labelling, title, bar width and edge colour for the bars. Also, give suitable python statement to save this chart in E: drive with name 'house.png'.

OR

Write suitable Python code to create a 'MultipleLine Plot' as shown below:



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