



INDIAN SCHOOL SOHAR
PREBOARD II EXAMINATION (2023-24)
INFORMATICS PRACTICES (065)

No of printed pages: 7

CLASS: XII

SET A

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 constraint in MySQL will prevent the entry of duplicate rows?
a) UNIQUE b) DISTINCT c) DEFAULT d) CHECK 1
2. Identify different parts of the given URL and choose the correct option for label 1 and 2. 1

https://www.cbse.gov.in/newsite/index.html

a) 1- Domain Name, 2- Protocol b) 1- Protocol, 2- Domain Name
c) 1- Domain name, 2- Subdomain d) 1- Protocol, 2- Subdomain
3. What is the meaning of "GROUP BY" clause in MySQL? 1
a) Group data by column values b) Group data by row values
c) Group data by column and row values d) Both a and b
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. By default, CSV file can take _____ character as separator. 1
a) | b) , c) ~ d) ;
6. Which of the following SQL query is used to retrieve rows from the "registration" table where the "email" column contains 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 NULL(email);
d) SELECT * FROM registration WHERE email IS NULL;

7. Identify FOSS from the following: 1
 a) MS-Windows b) Google Chrome c) Photoshop d) Ubuntu
8. "COUNT" belongs to which categories in MySQL? 1
 a) Aggregate functions b) Operators c) Clauses d) Statement
9. If a dataframe is created using a 2-D dictionary, then the column labels are formed from _____. 1
 a) dictionary's values b) inner dictionary keys c) outer dictionary keys d) Both a and b
10. Companies get their Trademark registered to protect _____. 1
 a) logos, names and brands b) word, phrase, or symbol
 c) slogans, stylized fonts, and colors d) company furniture, worker, brands
11. Which subset of SQL command is used to manipulate the database structure, including tables? 1
 a) DDL b) DML c) TCL d) DQL
12. Which of the following action can be taken to keep the digital footprint clean? 1
 a) Search what information you leftover social media and the internet
 b) Be smart and sensible while using any website, sending an email or opening a link
 c) Control visibility settings from the browser or website/app settings
 d) Remove any private details like mobile number, school, college name, address, photos, etc
13. What will be the output of the following? 1

```
>>> seriesMnth = pd.Series([2,3,4],index=["Feb","Mar","Apr"])
>>> seriesMnth[1]
```

 a) 2 b) Mar c) Feb d) 3
14. Legal term to describe the rights of a creator of original creative or artistic work is: 1
 a) Copyright b) Copyleft c) GPL d) Patent
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 web browser for the 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(SQRT(16), INSTR('LOL','I'));
```

 a) 1 b) 0 c) 4 d) NULL
- Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as:
- Both A and R are true and R is the correct explanation for A
 - Both A and R are true and R is not the correct explanation for A
 - A is true but R is false
 - A is false but R is true
17. **ASSERTION(A):** Cookies are small text files, containing a string of information, which is transferred by the website to the browser when we browse it.
REASONING(R): Cookies are primarily used to track users' physical locations. 1
18. **ASSERTION (A):** We can perform mathematical operations on two series objects of different size but not on two 1D arrays of different size.

REASONING (R): If two series are not aligned, NaN are generated but in case of arrays no concept of NaN and hence operations fail to perform.

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

- Display the name and bonus of all salesman after rounding off to 1 decimal place.
- 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'.
- Display the total salary of all salesmen joined on Monday.
- 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

- Write the output of: a.) `print(Df1.count(1))` b.) `print(len(Df1))`
- Display the 2nd and 3rd row details from the DataFrame.
- 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

- To remove the character 's' present at the end of the 'Sname' column values of the 'Salesman' table.
- To display the day of month of the current date.
- To truncate the value 136.72 to ten's place.
- To display the number of characters in the string 'Academics'.
- 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

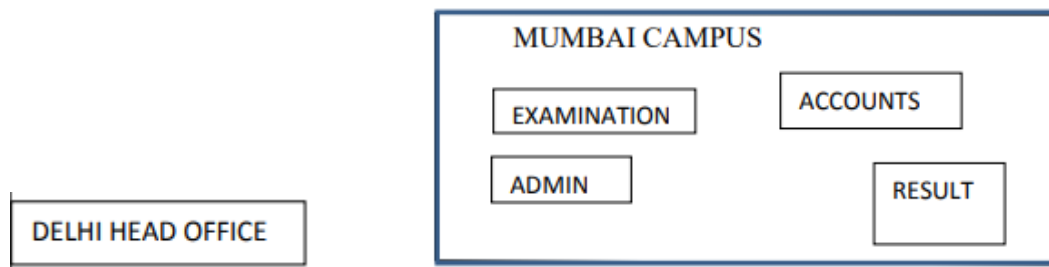
Table: ACTIVITY

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:

- Display the activity name and the number of participants participating in each activity.
- Display the name of participants and their activity names in descending order of the name of participants.
- 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.
- Display the houses with 2 participants.
- 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.



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.

5

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:

