



**INDIAN SCHOOL SOHAR**  
**PRE BOARD I EXAMINATION (2023-24)**  
**INFORMATICS PRACTICES (065)**  
**SET-A**

**CLASS : XII**  
**DATE : 26/11/2023**

**MAX. MARKS :70**  
**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 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. A computer network created by connecting the computers of your school's computer lab is an example of 1
  - a. LAN
  - b. PAN
  - c. MAN
  - d. WAN
2. Which of the following offence is not committed by cyber criminals? 1
  - a. Unauthorized account access
  - b. Report vulnerability in any system
  - c. Email spoofing and spamming
  - d. Mass attack using Trojans
3. How can we manage E-waste? 1
  - a. Reduce
  - b. Recycle
  - c. Reuse
  - d. All of these
4. Which type of values will be returned by SQL while executing the following statement? 1

Select length("LENGTH");

  - a. Numeric
  - b. Null
  - c. Text
  - d. Float
5. If column "salary" contains the data set (45000, 55000, 55000, 45000, 55000), what will be the output after the execution of the given query? 1

SELECT AVG (DISTINCT salary) FROM employee;

  - a. 38500
  - b. 40000
  - c. 41000
  - d. 50000
6. Internet is an example of \_\_\_\_\_ topology. 1
  - a. Star
  - b. Bus
  - c. Tree
  - d. Mesh
7. The mid( ) function in MySQL is an example of \_\_\_\_\_ function. 1
  - a. Math
  - b. Text
  - c. Date
  - d. Aggregate
8. Which one of the following is a string function? 1
  - a. MIN()
  - b. SUBSTR()
  - c. MAX()
  - d. COUNT()
9. Consider the string "Preboard 2023". Which among the following SQL command when used with Select statement will give the last 4 characters of the string as output? 1
  - a. right("Preboard 2023",4);
  - b. left("Preboard 2023",4);
  - c. substr("Preboard 2023",8,4);
  - d. substr("Preboard 2023",9,4)
10. Given a Pandas series called p\_series, the command which will display the last 4 rows is \_\_\_\_\_ . 1

- a. `print (p_series.Tail(4))`                      b. `print (p_series.Tails(4))`  
c. `print (p_series.tail(4))`                      d. `print (p_series.tails(4))`
11. In order to draw charts in Python, which of the following statement will be used: 1  
a. `import pyplot.matplotlib as p`                      b. `import matplotlib.pyplot as p`  
c. `Import matplotlib.pyplot as p`                      d. `import pyplot from matplotlib as p`
12. Which of the following when used to create a DataFrame creates a dataframe with predefined column names? 1  
a. Series                      b. Dictionary  
c. n-d array                      d. All of these
13. Which protocol is used to retrieve web pages across the web? 1  
a. HTTP                      b. VoIP  
c. SMTP                      d. FTP
14. In SQL, this function returns the time at which the query executes: 1  
a. `NOW()`                      b. `TIME()`  
c. `CURRENT()`                      d. `SYSDATE()`
15. In an email address, the characters following '@' represents \_\_\_\_\_. 1  
a. User name                      b. E-mail recipient  
c. Domain name                      d. None of these
16. The act of fraudulently acquiring someone's personal and private information, such as online account names, login information and passwords are called as \_\_\_\_\_. 1  
a. Phishing                      b. Plagiarism  
c. Identity theft                      d. Pharming
- Q17 and Q18 are ASSERTION AND 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
17. Assertion (A) : Modems are essential for establishing a connection between a computer and the internet. 1  
Reasoning (R) : Modems modulate and demodulate digital data to transmit it over analog mediums like telephone lines or cable systems, allowing devices to access the internet via these mediums.
18. Assertion (A) : Series is a one-dimensional labelled array capable of holding data of any type. 1  
Reasoning (R) : Series has both row and column values.

### Section B

19. Explain any two applications of the Internet. 2
- OR**
- Sahil, a Class X student, has just started understanding the basics of Internet and Web technologies. He is a bit confused in between the terms "World Wide Web" and "Internet". Help him in understanding both the terms with the help of suitable examples of each.
20. The python code written below has syntactical errors. Rewrite the correct code and underline the corrections made. 2  

```
import pandas as pd
d ={"12A":["math","ip","chem"],"12B":["bio","ip","phy"]}
df= p.DataFrame(d)
print(df)
```
21. Write the SQL queries which will perform the following operations: 2  
i. To display the name of the month of today's date.

- ii. To remove spaces from the beginning and end of a string, “ Pre Board 1 ”. 2
22. Predict the output of the given Python code: 2
- ```
import numpy as np, pandas as pd
seriesAlph = pd.Series(np.arange(10,16,1),index = list('abcdef'))
print(seriesAlph)
```
23. Ms. Priya is using her internet connection to book a train ticket. This is a classic example of her leaving a trail of web activities behind. What do we call this type of activity? What is the risk involved in this kind of activity? 2
24. Carefully observe the following code : 2
- ```
import pandas as pd
product={'prodid':pd.Series([1,2,3,4,5]),
'pname':pd.Series(['pen', 'pencil', 'eraser','color','sharpener']),
'qty':pd.Series([2,10,10,30,10]),
'price':pd.Series([300,20,50,40,15])}
stock=pd.DataFrame(product)
print(stock)
```
- Write Python statements for the following:
- Display the names of products.
  - Display the DataFrame in ascending order of the column 'price'.
25. Distinguish between the single-row and aggregate functions of MySQL. Write one example for each. 2

### Section C

26. Consider the table Customer given below and write SQL commands: 3

**TABLE : Customer**

| CustID | Name     | Country  | Emailid         | Orderdate  |
|--------|----------|----------|-----------------|------------|
| C1001  | Rajat    | India    | rajat@gmail.com | 2022-12-22 |
| C1002  | Michael  | Denmark  | mic@yahoo.com   | 2023-11-15 |
| C1003  | Riyo     | Thailand | Ri@gmail.com    | 2022-05-06 |
| C1004  | Jennifer | S. Korea | Jen@gmail.com   | 2022-08-07 |
| C1005  | Sudha    | India    | Sud@abc.com     | 2023-01-01 |
| C1006  | Vivek    | Nepal    | viv@xyz.com     | 2023-04-14 |

- Display the details of all customers who have placed order in the year 2023.
- Count the total number of customers from India.
- Display the last 9 characters of the email id joined with first 2 characters of name of all customers of Denmark.

### OR

Predict the output of the following queries based on the table Customer:

- select length(name)+3 from customer where country= "india";
  - select day(orderdate)/2 "calc" from customer where right(custid,1)>4;
  - select upper(mid(name,2)) FROM Customer where emailid like "%gmail%";
27. Write a Python code to create a dataframe with specified column headings and data. Name the dataframe as 'student'. Create the dataframe using 2-d dictionary. Display the first 2 rows. 3

|         | Arnab | Ramit | Samridhi |
|---------|-------|-------|----------|
| Maths   | 90    | 92    | 89       |
| Science | 91    | 81    | 91       |
| Hindi   | 97    | 96    | 88       |
| English | 95    | 86    | 95       |

28. Write MySQL statements for the following: 3
- Create a database named 'files' and access it.
  - Create the table named "sales" based on the following specification:

| Field     | Type    | Size  | Constraint  |
|-----------|---------|-------|-------------|
| SCODE     | Int     | 6     | Primary Key |
| FIRSTNAME | Varchar | 30    | Not Null    |
| LASTNAME  | Varchar | 30    | Not Null    |
| CITY      | Varchar | 30    |             |
| SALES     | Decimal | (8,2) |             |

29. Mr. Faizal received a message that he needs to update the KYC for his Bank Account therefore he should upload his Aadhar Card, Bank Account Number and the OTP on the link given in his message.

3

Answer the following questions:

- Should Mr. Faizal upload the documents and give the OTP on the link?
- What should Mr. Faizal do to check for the validity of the message?
- What is the act mentioned in the message known as?

**OR**

Expand and explain the following terms with an example each:

- OSS
- FOSS

30. Consider the given DataFrame 'Items':

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|   | Name      | Price | Quantity |
|---|-----------|-------|----------|
| 0 | CPU       | 7750  | 15       |
| 1 | Watch     | 475   | 50       |
| 2 | Key Board | 225   | 25       |
| 3 | Mouse     | 150   | 20       |

Write suitable Python statements for the following:

- Add a new row at the index 4 with the data as: (RAM,1800,25)
- Increase the Price of Watch by 12%.
- Display the price and quantity of keyboard and mouse.

**Section D**

31. Consider the Table CLUB given below:

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| COACH_ID | COACHNAME | AGE | SPORTS     | DATOFAPP   | PAY   | SEX |
|----------|-----------|-----|------------|------------|-------|-----|
| 1        | KUKREJA   | 35  | KARATE     | 1996-03-27 | 10000 | M   |
| 2        | RAVINA    | 34  | KARATE     | 1997-01-20 | 12000 | F   |
| 3        | KARAN     | 34  | SQUASH     | 1998-02-19 | 20000 | M   |
| 4        | TARUN     | 33  | BASKETBALL | 1998-01-01 | 15000 | M   |
| 5        | ZUBIN     | 36  | SWIMMING   | 1998-01-12 | 7500  | M   |

Answer the following based on the above table:

- Write a query to display the average pay for karate coach.
- Write a query to display the name of the coach in lower case and pay truncated to 3 places to the left of the decimal point.
- Write a query to display the details of male coaches in ascending order of their age.
- Write a query to display game wise maximum pay of all coaches.

32. Consider the following DataFrame 'employee':

4

| EID | EName   | Department | Salary |
|-----|---------|------------|--------|
| 1   | John    | IT         | 50000  |
| 2   | Ria     | MKT        | 45000  |
| 3   | Shobhit | IT         | 55000  |
| 4   | Aditya  | MKT        | 60000  |
| 5   | Rashi   | ADMIN      | 52000  |

Write Python statements for the DataFrame 'employee'

- To remove the column 'salary'.
- To remove the row having index 4.

- iii. Write Python statement to save the DataFrame 'employee' to a CSV file named 'sample.csv' separated by '\$'.

**OR (only for part iii)**

With respect to the DataFrame 'employee' write Python statement to create a new column named 'CTC' as salary X 12.

**Section E**

33. Consider the tables PRODUCT and BRAND given below:

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**Table: PRODUCT**

| PCode | PName      | UPrice | Rating | BID |
|-------|------------|--------|--------|-----|
| P01   | Shampoo    | 120    | 6      | M03 |
| P02   | Toothpaste | 54     | 8      | M02 |
| P03   | Soap       | 25     | 7      | M03 |
| P04   | Toothpaste | 65     | 4      | M04 |
| P05   | Soap       | 38     | 5      | M05 |
| P06   | Shampoo    | 245    | 6      | M05 |

**Table: BRAND**

| BID | BName      |
|-----|------------|
| M02 | Dant Kanti |
| M03 | Medimix    |
| M04 | Pepsodent  |
| M05 | Dove       |

Write SQL queries for the following:

- Display product name and brand name from the tables PRODUCT and BRAND.
- Display the total rating acquired products-wise where the product name starts with 's'.
- Display the rating of Medimix and Dove brands.
- Display the name, price, and rating of products in descending order of rating.
- Display the brand-name and number of products produced by each brand.

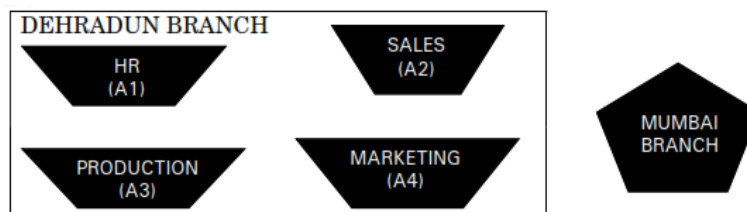
**OR**

Write suitable SQL query for the following:

- Display 7 characters extracted from 22<sup>nd</sup> character from the string 'Experience is a hard teacher'.
- Display the position of occurrence of string 'HIDE' in the string 'HIDE AND SEEK'.
- Round off the value 45.1876 to two places.
- Display the power of 77 raised to 4.
- Join the string "Pre board" with name of the current month.

34. AWESOME Private Ltd, Dehradun is a company that deals with hardware components. They have different divisions HR (A1), Sales (A2), Production (A3) and Marketing (A4). The layout of the Dehradun branch is :

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The company also has a branch in Mumbai. The management wants to connect all the divisions as well as the computers of each division (A1, A2, A3, A4).

Distance between the wings are as follows :

|                                       |         |
|---------------------------------------|---------|
| A3 to A1                              | 32m     |
| A1 to A2                              | 53m     |
| A2 to A4                              | 29m     |
| A4 to A3                              | 110m    |
| A3 to A2                              | 750m    |
| A1 to A4                              | 200m    |
| Dehradun Head Office to Mumbai Office | 1656 KM |

Number of computers in each wing :

|    |     |
|----|-----|
| A1 | 70  |
| A2 | 140 |
| A3 | 55  |
| A4 | 70  |

Based on the above specifications, answer the following questions :

- i. Suggest the topology and draw the most efficient cable layout for connecting all the divisions of the Dehradun branch.
- ii. Suggest the kind of network required (out of LAN, MAN, WAN) for connecting Production (A3) with Sales (A2).
- iii. Suggest the placement of the server. Explain the reasons for your selection.
- iv. Suggest the placement of the Switch/Hub device with justification.
- v. The company wants to do a collaborative project where the employees of Dehradun and Mumbai would collaborate and do the project. Therefore, the HR planned a series of webinars the employees could attend from their devices being online. Suggest the protocol that helped to send the voice signals over the Internet. Also, give an example of a video conferencing software that help to connect all the employees.

35. The maximum temperature of a region over a span of 12 month are given below:

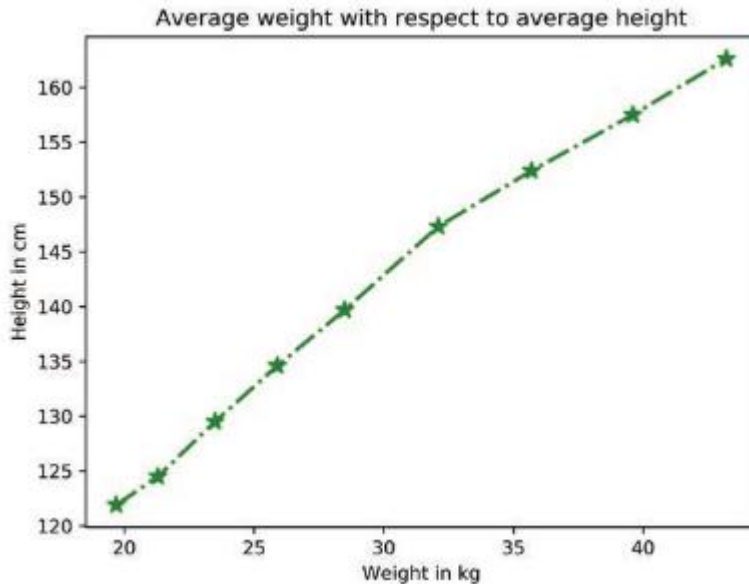
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max\_temp=[12,18,20,22,33,35,35,36,38,42,45,39]

Write suitable Python code to generate a histogram based on the given data, along with an appropriate chart title and both axis labels. Also give suitable python statement to save this chart, change the edgecolor to green, line style to ":" and line width to 2.

OR

Write python code to plot the line graph for average weight with respect to average height for student of a class as shown below:



Also give suitable python statement to save this chart as 'Result.png'

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