COMMON PRE-BOARD EXAMINATION: 2022-23
Class-XII Subject: INFORMATICS PRACTICES(065)

Date: 12/01/2023

General Instructions:
1. This question paper contains 7 printed pages with five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 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 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice isgiven in Q35 against part c only.
8. All programming questions are to be answered using Python Language only.

PART A

1. Mr. John is a small businessman who runs a stationery shop. He has been experiencing problems with his small accounting department, which he depends on to provide sales reports. Mr. John wants to share information between his 7 computer stations and have on central printing area. What type of network would you recommend to Mr. John?   1
   a) MAN
   b) WAN
   c) PAN
   d) LAN

2. According to the guidelines issued by CPCB, who will be responsible for the final safe disposal of the product when it becomes an e-waste?   1
   a) The Seller
   b) The customer/user
   c) The manufacturer
   d) None of these

3. Which one of the following is a single row function in MySQL?   1
   a) MAX()
   b) LENGTH()
   c) COUNT()
   d) AVG()

4. The output of the following SQL command would be _____   1

   SELECT POW(INSTR("INFORMATION FORM","RM"),2);
   a) 25
   b) 225
   c) 5
   d) None of the above

5. The outputs of the given two commands are 12 and 10 respectively.   1
    Select COUNT(*) From Employee;
    Select COUNT(Designation) From Employee;
    How many NULL values are there in Designation column of the Employee table?
    a) 12
    b) 10
    c) 2
    d) None of these

6. A _____ is a collection of interconnected _____ related through hyperlinks, and   1
    saved on a web server.
    a) webpage, website
    b) web browser, webpage
    c) server, client
    d) website, webpage

7.   1

Table: Sales

Column Name
Store_ID
Sales_Date
Sales_Amount

   Given a Table 'Sales', with fields as shown above. Which SQL statement allows you to find the
   total sales amount for each store?
   (a) SELECT Store_ID, SUM(Sales_Amount) FROM Sales;

   (b) SELECT Store_ID, SUM(Sales_Amount) FROM Sales ORDER BY Store_ID;

   (c) SELECT Store_ID, SUM(Sales_Amount) FROM Sales GROUP BY Store_ID;

   (d) SELECT Store_ID, COUNT(Sales_Amount) FROM Sales GROUP BY Store_ID;

8. This is the type of chart for numeric data that group the data into bins.   1

    a) Histogram
    b) Scatter chart
    c) Box plot
    d) Bar chart

9. Which one of the following string function will always return an integer value as output ?   1
    a)   LOWER()
    b)   INSTR()
    c)   SUBSTR()
    d)   LEFT()

10. The command to display last 3 rows from series named "week" is_____   1
    a) print(week.tail(3))
    b) print(week.Tail(3))
    c) print(week.Tails(3))
    d) print(week.tails(3))

11. To display the 3rd, 4th and 5th columns from the 6th to 9th rows of a dataframe DF you can write   1
    a) DF.loc[6:9, 3:5]
    b) DF.loc[6:10, 3:6]
    c) DF.iloc[6:10, 3:6]
    d) DF.iloc[6:9, 3:5]

12. Consider a DataFrame df as below :   1

```
        City  MinTemp  MaxTemp  WindSpeed
C1     Delhi        9       41          5
C2    Jaipur       11       43          7
C3    Kanpur        6       40          6
C4    Ratlam       18       36          6
```

    What will the output of the following command?
    >>> df.size
    a) (4,4)
    b) [4,4]
    c) 16
    d) Value Error

13. The primary law in India dealing with cybercrime and electronic commerce is   1
    a) India's Technology (IT) Act, 2008
    b) Digital Information Technology (DIT) Act, 2000
    c) Information Technology (IT) Act, 2000
    d) The Technology Act, 2008

14. Write the output of the following SQL command: 1
    SELECT round(789.567, -2);
    a) 789.5
    b) 790
    c) 800
    d) 789

15. The one who tries to gain unauthorized access to computers or networks in order to steal sensitive   1
    data with the intent to damage or bring down systems is called -------------------
    a) Cracker
    b) Plagiarism
    c) Ethical Hacker
    d) Phishing

16. Linux, MySQL and Mozilla Firefox software come under which category-   1

    a) Propriety
    b) FOSS
    c) Freeware
    d) Shareware

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) :** Pandas offers a single and convenient place to plot graphs i.e. matplotlib for visualization and data analysis through graphs.
    Reasoning (R) : Matlpotlib is a 2-D plotting library that helps in visualizing figures. 1

18. **Assertion (A) :** Free and open source software (FOSS) has a large community of users and developers who are contributing continuously towards adding new features or improving the existing features.
    Reasoning (R) : Windows operating system comes under FOSS. 1

PART B

19. Explain the term Website and Web Server. 2
    OR
    Differentiate between Static webpage and Dynamic webpage.

20. Sam wrote the following query to display the total number of employees in each department where the total employees are more than 5. 2

    SELECT DEPT, COUNT(*) FROM EMPLOYEE WHERE COUNT(*)>5 GROUP BY DEPT;

    But didn't get the desired output. Help him in identifying the reason of the error and write the correct query by suggesting the possible correction.

21. Consider the following SQL string: "Corporate world" . Write commands to display: 2
       a. "rate"
       b. "world"
                                        OR
    Considering the same string "Corporate world" Write SQL commands to display:

       a. the position of the substring 'or' in the string "Corporate world"
       b. the last 4 letters of the string

22. Write a program to create a series object using a dictionary that stores the number of students in each class from 9 to 12 of your school. 2
    Note: Assume classes 9, 10, 11 and 12 having 45, 50, 43, 35 students respectively.

23. Explain passive digital footprint with example. 2
    OR
    What do you mean by intellectual property ? How is it protected?

24. What will be the output of the following code? 2
    import pandas as pd
    data= {'Name':['Sachin','Dhoni','Virat','Rohit'],
    'Age':[26,27,25,24],'Score':[87,89,89,55]}
    df=pd.DataFrame(data, index=['a','b','c','d'])
    print(df['Score']>=87)

25. Carefully observe the following code:
```
import pandas as pd
Stu1={'Eng':78,'Hindi':85,'Math':90,'Sci': 89}
Stu2={'Eng':70,'Hindi':80,'Math':80,'Sci': 79}
totMarks={'A':Stu1,'B':Stu2}
df=pd.DataFrame(totMarks)
print(df)
```
Answer the following:
   i.   List the index of the DataFrame df
   ii.   List the column names of DataFrame df.

2

SECTION C

26. Write outputs for SQL queries (i) to (iii) which are based on the given table SCHOOL:

3

TABLE: SCHOOL

ADN	CLASS	STREAM	PERCENT	DOA
A001	12	SCIENCE	90.32	2022-06-11
A002	11	COMMERCE	89.6	2022-02-19
A003	11	ARTS	78.12	2021-12-04
A004	12	SCIENCE	81.83	2021-10-10
A005	12	ARTS	95.13	2021-10-20

   i. SELECT ROUND(PERCENT) FROM SCHOOL WHERE CLASS=11;

   ii. SELECT MIN(DOA) FROM SCHOOL WHERE CLASS=12;

   iii. SELECT MOD (DAY(DOA),CLASS)) FROM SCHOOL WHERE STREAM= 'ARTS';

27. Write a Python code to create a DataFrame with appropriate column headings from the list given below:

3

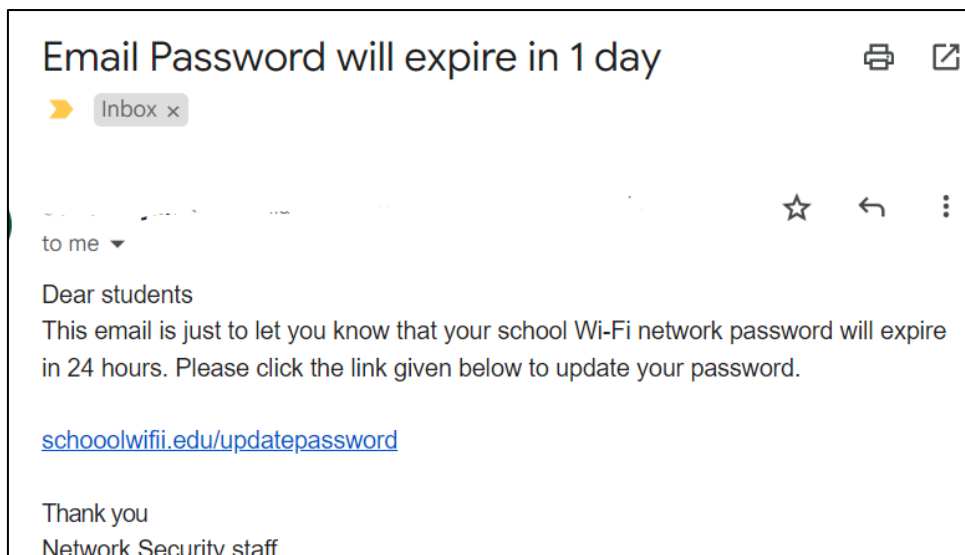[[E001,'Govind',PHY],[E002,'Raju',CS],[E003,'Kiran' ,CHEM],[E004,'Dinesh',ENG]]

28. Consider the given DataFrame **'Forest'**:

3

	State	GArea	VDF
0	Assam	6789	423.70
1	Delhi	123	8.37
2	Kerala	33825	1225.00

Write suitable Python statements for the following:
   i. Add a column called TArea with the following data: [5432,7896,4400].
   ii.Delete the 'VDF' column from the DataFrame.
   iii.Rename the index as State1, State2 and State3.

29. New Horizon Public School, Bengaluru, offers wireless facility (Wi-Fi) to the IP students of Class XII. For communication, the network security staff of the school have a registered URL schoolwifi.edu. On 25 December 2022, the following email was mass distributed to all the IP students of Class XII. The email claimed that the password of the students was about to expire. Instructions were given to go to URL to renew their password within 24 hours.

3

Email Password will expire in 1 day

Inbox ×

to me ▼

Dear students
This email is just to let you know that your school Wi-Fi network password will expire in 24 hours. Please click the link given below to update your password.

schooolwifii.edu/updatepassword

Thank you
Network Security staff

a. Do you find any discrepancy in this email?
b. What will happen if the student will click on the given URL?
c. Is the email an example of cyber crime? If yes, then specify which type of cyber crime is it? Justify your answer.

OR

According to a survey, only 22.7 per cent of the e-waste out of the total 10,14,961.21 tons generated in 2019-20 in India was collected, dismantled, and recycled or disposed off. Suggest some methods to manage e-waste .

30. Based on table **EMPLOYEE** given here, write suitable SQL queries for the following: 3

Emp No	Name	Design	Gen	City	Salary
1.	Anushka	Manager	M	Raipur	89430
2.	Vandana	HR	M	Durg	76440
3.	Vibha	Sales	F	Agra	65470
4.	Dhrishti	HR	F	BBSR	75492
5.	Bhoomi	Manager	M	Delhi	87360
6.	Aditi	Sales	F	NULL	68256
7.	Monika	Engineer	F	Mysore	83324
8.	Priyanshi	Engineer	M	Mysore	84429|

  i. Display total of salary of male and female employees.
 ii. Display the number of different cities.
iii. Display maximum salary of the employee designation wise.

OR

Alisha needs a clarity with the purpose of "Group by" and "Order by" clauses in MySQL. You are required to provide an example highlighting the difference between the two with suitable justification

SECTION D

31. Write suitable SQL query for the following: 5
    i.   Display 'VIDYA' from string 'KENDRIYA VIDYALAYA'.
   ii.   Display the position of occurrence of string 'VANSH' in the string 'SURYAVANSH'.
  iii.   Find reminder of 17 divided by 3.
  iv.   Display the day name from '01-April-2022'.

    v.   Remove all the expected leading and trailing spaces from a column EMPID of the table **"EMP"**
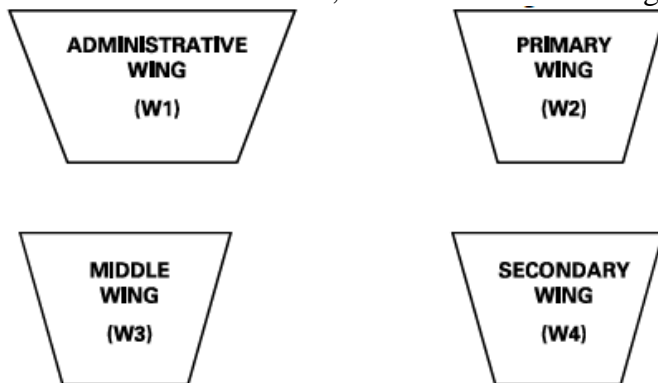
<div align="center">**OR**</div>

Explain the following MySQL functions with examples:
- i.   ROUND()
- ii.   LCASE()
- iii. NOW()
- iv. MID()
- v.   LEFT()

32. ABC International School, Delhi has different wings as shown in the diagram :   5

Distance between the wings are as follows:

W3 to W1	70 m
W1 to W2	40 m
W2 to W4	15 m
W4 to W3	100 m
W3 to W2	120 m
W1 to W4	80 m

Number of computers in each of the wings :

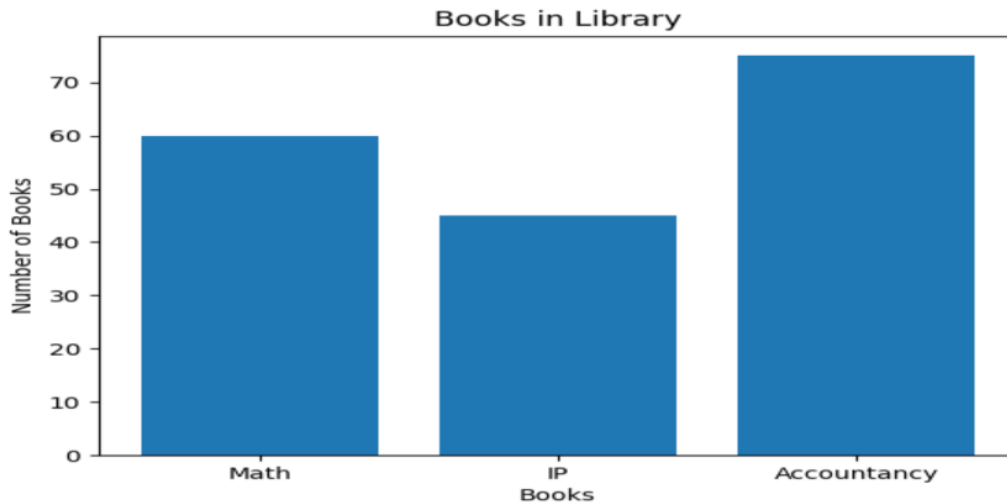|	
W1	125
W2	40
W3	42
W4	60

Based on the above information, answer the following questions :

(a) Suggest the most suitable cable layout for the above connections.

(b) In which wing would you place the server? Explain the reason for your selection.

(c) Suggest the kind of network required (out of LAN, MAN, WAN) for connecting Administrative Wing and Middle Wing.

(d) Suggest the placement of the following devices with justification:
    (i) Repeater
    (ii) Switch/Hub

(e) School 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? Justify.

33. Write python code to plot a bar chart for Library Books as shown below: 5

Also give suitable python statement to save this chart.

OR

Write a program to plot a line chart based on the given data to depict the runs scored by a batsman in 5 innings.
Innings = [1,2,3,4,5]
Runs = [102,88,98,146,52]
Give suitable labels and title to the chart. Also give suitable python statement to save this chart.

SECTION E

34. Pallavi, a database administrator has designed a database for cars showroom. Help her by writing answers to the following questions based on the given table: 1+1+2

SALE

InvoiceNo	CarId	CustId	SaleDate	PaymentMode	EmpId	SalePrice
101	D01	C01	2019-01-24	Credit Card	E04	613247.00
102	S01	Cp2	2018-12-12	Online	E01	590321.00
103	S02	C04	2019-01-25	Cheque	E10	604000.00
104	D01	C01	2018-10-15	Bank Finance	E07	659982.00
105	E01	C03	2018-12-20	Credit Card	E02	369310.00

(i) Write a query to display invoice number and name of month in which car is purchased.
(ii) Write a query to display highest price .
(iii) Write query to display number of cars sold in each year.
OR(for part iii only)
Write query to display the number of cars purchased through each payment method.

35. Mr. Ajay, a data analyst has designed a dataframe df that contain data about marks obtained by students in different subjects. Answer the following questions: 1+1+2

	Accountancy	Economics	IP
Ayush	92	82	72
Karan	87	89	87
Tarun	95	88	97

(a) Predict output of following python statements:

(i) print(df.shape)

(ii) print(df[1:])

(b) Write python statement to display the IP marks of Karan and Tarun.

OR(for part (b) only)

Write python statement to compute the sum of marks of all the subjects of given dataframe and add it as another column TOT_MARKS.