COMMON PRE-BOARD EXAMINATION-2023
INFORMATICS PRACTICES (065)

Class: XII **Max. Marks: 70**
Date: 12/01/2023 **Time: 3 Hours**

General instructions:

1. *This question Paper has five sections, from A to E.*
2. *All questions are compulsory.*
3. *Section A contains 18 questions, each carries 01 mark.*
4. *Section B has 07 Very Short Answer type questions carrying 02 marks each.*
5. *Section C has 05 Short Answer type questions of 03 marks each.*
6. *Section D has 03 Long Answer type questions of 05 marks each.*
7. *Section E has 02 questions of 04 marks each.*
   Internal choice is given in Q34 and Q35 against part iii only.
8. *All programming questions should be answered using the Python language only.*

Section – A

1. The collection of millions of interlinked web pages and resources on the internet forms the_____. [1]
   a. Web Server
   b. Website
   c. World Wide Web
   d. E-mail System

2. The practice of sending fraudulent messages that appear to have come from a reputable source is known as: [1]
   a. Hacking
   b. Plagiarism
   c. Identity Theft
   d. Phishing

3. Which of the following activities is an example of leaving active digital footprints? [1]
   a. Surfing internet
   b. Visiting a website
   c. Sending an email to a friend
   d. None of the above

4. If column "Salary" of a table 'employee' contains the data set (6000, 5000, 7000, 5000, 8000), what will be the output after the execution of the given query? [1]

   SELECT SUM (DISTINCT salary) FROM employee;
   a. 26000

b. 10000
c. 20000
d. 33500

5. Write output for the following SQL statement. [1]
SELECT SUBSTR('abcdefghij', INSTR ('123321234','2'),2) FROM DUAL;
a. gh
b. 23
c. bc
d. ab

6. The practice of taking someone's work or ideas and passing them off as one's own is known as: [1]
a. Identity theft
b. Spamming
c. Hacking
d. Plagiarism

7. Mr. Kumar is working for an IT company. He stored the salaries of employees for the month of January in the series "jan_Sal" and the salaries for February in the series "feb_Sal." Now he wants to add the salaries from both months. He has written the following statements: Identify the correct one. [1]
a. print (Feb_Sal+Jan_Sal)
b. print (Feb_Sal add Jan_Sal)
c. print (Feb_Sal.plus(Jan_sal))
d. None of the above.

8. Which of the following is not an aggregate function? [1]
a. Avg ()
b. Trim ()
c. Min ()
d. Sum ()

9. What will be the output of the following query: - [1]
SELECT TRUNCATE (153.664,2);
a. 153.66
b. 153.65
c. 153.00
d. 153.67

10. Which of the following is not a valid plotting function of pyplot? [1]
a. bar( )
b. hist( )
c. histh( )
d. barh( )

11. Given a Pandas series called S, the command which will display the last 4 rows is _____. [1]
    a. print(S.tail(4))
    b. print(S.Tail())
    c. print(S.tails(4))
    d. print(s.tail(4))

12. Which of the following is not a violation of IPR? [1]
    a. Plagiarism
    b. Copyright Infringement
    c. Patent
    d. Trademark Infringement

13. Which of the following statements is true for network hub? [1]
    a. A hub connects different stations in a private network.
    b. It sends data packets to the intended recipient.
    c. It contains two ports: one for input and other for output.
    d. It works at the network layer

14. in SQL, which function is example of scalar function? [1]
    a. count ()
    b. avg ()
    c. ucase()
    d. max ()

15. Which SQL keyword is used to sort the result-set? [1]
    a. SORT BY
    b. ORDER
    c. ORDER BY
    d. SORT

16. The garbage of electronic gadgets such as computers, peripherals, laptop accessories and mobile phones is known as _____ [1]
    a. Electronics waste item
    b. E-waste
    c. Waste Electronics
    d. Unused old computers

Q17 and 18 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):** The MAC address is a 6-byte address that is encoded in hexadecimal digits. [1]
Reason (R): When interacting over a network, both IP and MAC addresses are utilized.

18. **Assertion (A):** The shape attribute returns the total number of rows and columns in the data frame. [1]
Reason (R): The shape attribute returns the values in the form of a list.

Section – B

19. Write down one advantage of a bus topology in a network. Illustrate with a diagram how four computers can be linked together using a network's bus topology. [2]

OR

Explain the functions of the following network devices:
a. Modem
b. gateway

20. Write SQL commands: - [2]
a. To print the length of the string "Happy Holidays"
b. To print the string "Happy Holidays" in capital letters.

21. i. What is the purpose of the GROUP BY clause in MySQL? How is it different from the ORDER BY clause? [2]

ii. Shanya Khanna is using the "Employee" table.
It has the following columns:
Admno, Name, Agg, Stream [column Agg contains Aggregate marks] She wants to show the highest Aggregate in each stream. She wrote the following statement:
SELECT Stream, MAX(Agg) FROM EMPLOYEE;
However, she did not achieve the desired outcome. Rewrite the above query with the necessary changes to assist her in obtaining the desired results.

22. Write the output of the following code: [2]

```
import pandas as pd
S1 = pd.Series([31, 28, 31, 30, 31], index = ["Jan", "Feb", "Mar",
"Apr", "May"])
print("-----------")
print(S1[1:3])
print("-----------")
print(S1[:5])
```

```
print("-----------")
print(S1[3:3])
print("-----------")
print(S1["Jan":"May"])
```

23. What do you mean by Intellectual Property Right (IPR)? Write it types [2]

OR

Mention any four net etiquettes.

24. What will be the output of the following code: [2]

```
import pandas as pd
x={'A':[50,10],'B':[80,20],'C':[12,30],'D':[18,40]}
tot_Sales={"Sales":x}
df=pd.DataFrame(tot_Sales)
print(df)
```

25. Carefully observe the following code: [2]

```
import pandas as pd
x=[[100,200,300],[10,20]]
df=pd.DataFrame(x)
print(df)
```

Answer the following:

(i) Display the row and columns labels of a data frame.

(ii) Write the syntax for displaying number of elements and dimension of the above data frame.

Section – C

26. Write outputs for SQL queries (i) to (iii) which are based on the given table Employee: [3]

E_ID	FNAME	LNAME	SALARY	JOINING_DATE	DEPARTMENT
1	Mansa	Singh	100000	2014-02-20	HR
2	Nikita	Kapoor	800000	2016-07-11	Admin
3	Vaibhav	Singh	300000	2017-02-21	HR
4	Atul	Gupta	500000	2014-02-20	Admin
5	Jai	Kumar	200000	2016-02-11	Admin

(i) SELECT INSTR (LNAME, 'a') FROM EMPLOYEE WHERE DEPARTMENT<>'HR';

(ii) SELECT POW(DAY(JOINING_DATE), MONTH(JOINING_DATE)) FROM EMPLOYEE WHERE SALARY >=200000;

(iii) SELECT * FROM EMPLOYEE WHERE MID(LNAME,4,2) = 'gh';

27. Consider the given DataFrame 'batsman': [3]

	BNO	NAME	YEARS ACTIVE	MATCHES	RUNS
0	1	VIRAT KOHLI	2010-2022	115	4008
1	2	RG SHARMA	2007-2022	148	3853
2	3	KL RAHUL	2016-2022	72	2265
3	4	S DHAWAN	2011-2021	68	1759

(i) Add a new column INNINGS with the values 107,140,68,66
(ii) Add a new row with values (index as 4, Bno- 5, name- MS Dhoni, years active – 2006-2019, matches – 98, runs- 1617, innings - 98)
(iii) Delete the columns Bno and innings.

OR

Which attribute of the data frame is used for the following.

i. to transpose the data frame.
ii. To display the datatypes of data in the data frame.
iii. To returns the value true if data frame is empty and false otherwise.

28. Ms. Priya is working on an application made in python. She wants to import the data from the csv file "data.csv" with the following features. [3]

a. customize the column header with the headings given below: "AdmNo","FirstName","LastName","Class"

b. hide the header from the csv file.

c. She wants to store only 3rd, 4th, 6th,8th and 9th rows from the data.csv to dataframe.

29. Ms. Suhana, a well-known celebrity in the entertainment industry, encountered the following situations. Determine the type of crime that occurred in each situation/incident that occurred to her. [3]

i) Someone started an argument with her on purpose and posted derogatory messages online.

ii) She received an email that appeared to be from her manager, with a link to fill out some sensitive information. She gave the information, resulting in a breach of confidentiality.

iii) Her official social media account was unauthorizedly controlled by someone.

OR

What do you understand by e-waste? What are the different methods of e-waste management? Discuss each method briefly.

30. Based on the "salesman" table given here, write suitable SQL queries for the following: [3]

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 bonus after rounding off to 1 decimal place.
ii. Display the total number of characters in all sname where the bonus is assigned.
iii. Show the total salary for each year of employment.

OR

Consider the table 'worker' below and answer the following questions:

Ecode	**Name**	**Gender**	**Desig**	**Doj**
11	Radhe	M	Supervisor	1998-12-20
12	Fizza	F	Clerk	1997-08-07
13	Radhika	F	Supervisor	2000-09-06
14	Shyam	M	Operator	1999-07-16
15	Sanya	F	Operator	1999-07-13

i. What will be the output of the following command:
select name from worker where Doj>"1998-12-20";

ii. Raghav wants to know how many male and female employees are present in the table. Write SQL statement for the same.

iii. Write a SQL statement to display the name of the month in the field Doj.

SECTION – D

31. Predict the output: [5]

a) SELECT concat("Bread","&","Butter");

b) SELECT instr("A picture is worth a thousand words","worth");

c) SELECT truncate(465.4993,2);

d) SELECT mod(17,2);

e) SELECT substr("Born with a silver spoon in mouth",-5);

OR

Write SQL statements for the following:

a) Display the length of the string "Attendance is Mandatory".

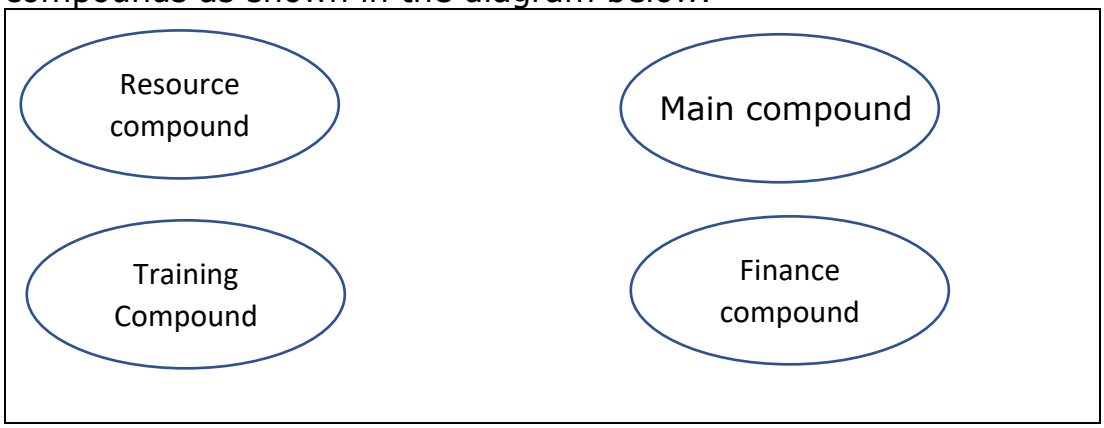
b) Display the position of "to" in "Photographs".

c) Display the day name of the week.

d) Display the system date.

e) Display the String "Break the ice" in uppercase.

32. "Learn together" is an educational NGO. It is setting up its new campus at Jaipur for its web-based activities. The campus has 4 compounds as shown in the diagram below. [5]



Center to center distances between various compounds as per architectural drawings (in Meter) is as follows.

Main Compound to Resource Compound	110m
Main Compound to Training Compound	115m
Main Compound to Finance Compound	35m
Resource Compound to Training Compound	25m
Training Compound to Finance Compound	100 m

Expected number of computers in each compound is as follows.

Main Compound	5
Resource Compound	15
Training Compound	150
Accounts Compound	20

1. suggest a cable layout of connections between the compounds.

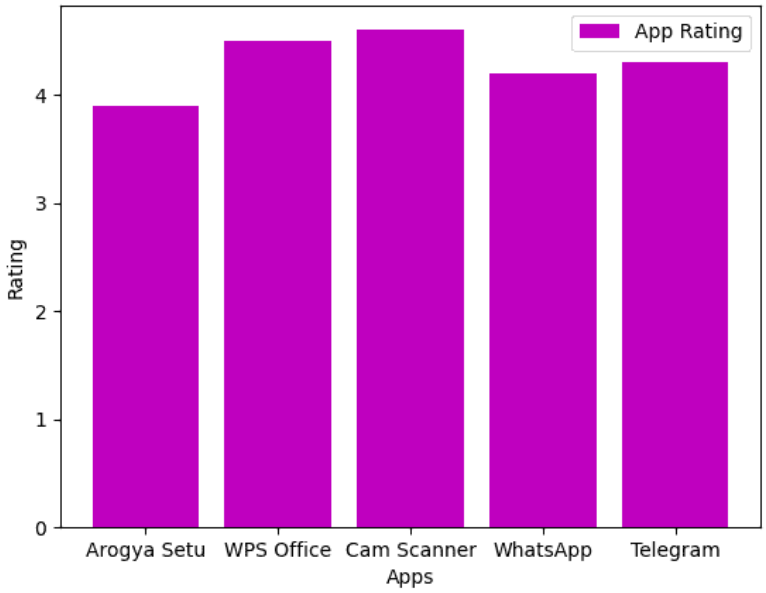
2. Suggest the most suitable topology of the connection between the wings.

3. Suggest the most suitable place (i.e., compound) to house the server for this NGO. Also, provide a suitable reason for your suggestion.

4. Suggest the placement of the following devices with justification:
   i. Repeater
   ii. Hub/switch

5. The NGO is planning to connect its international office situated in Mumbai, which out of the following wired communication link, you will suggest for a high very high-speed connectivity?
   (i) telephone analog line
   (ii) optical fiber
   (iii) ethernet cable

33. Mr. Vijay is working in the mobile app development industry and he was comparing the given chart on the basis of the rating of the various apps available on the play store. [5]



He is trying to write a code to plot the graph. Help Mr. Vijay to fill in the blanks of the code and get the desired output.

```
import _____ as plt #Statement 1
apps=["Arogya Setu","WPS Office","Cam
Scanner","WhatsApp","Telegram"]
```

```
ps_rating=[3.9,4.5,4.6,4.2,4.3]
plt._____(apps,ps_rating,color='m',label=_____)
#Statement 2 Statement 3
plt.xlabel("Apps")
plt._____("Rating") #y axis label
plt._____ #Statement 5 to display the graph
```

OR

Write a python program to draw a histogram with following information:

10 15 10 10 10 15 20 20 20 20 20 25 25

The histogram should have followed information

- X-axis label should be score and Y-axis should be Frequency
- The title should be Frequency of Score
- The colour of histogram should be blue with 10 bins

Use proper import statements in the program

SECTION – E

34. Shreya, a database administrator has designed a database for a clothing shop. Help her by writing answers of the following questions based on the given table 'garment': [1]+ [1]+ [2]

CCODE	CNAME	SIZE	COLOR	PRICE	DOP
C001	JEANS	XL	BLUE	990	2022-01-21
C002	T SHIRT	M	RED	599	2021-12-12
C003	TROUSER	M	GREY	399	2021-11-10
C004	SAREE	FREE	GREEN	1299	2019-11-12
C005	KURTI	L	WHITE	399	2021-12-07

i. Write a query to display cloth names in lower case.
ii. Write a query to display the lowest price of the cloths.
iii. Write a query to count total number of cloths purchased of medium size.

OR (Option for part iii only)

Write a query to count year wise total number of cloths purchased.

35. Yukta has created a Data frame "SportsDay" to keep track of the number of First, Second and Third prizes won by different houses in various events. [1]+ [1]+ [2]

	HOUSE	FIRST	SECOND	THIRD
0	Ashoka	5	7	6
1	Shivaji	10	5	4
2	Tagore	8	13	15
3	Raman	12	9	12
4	Subhash	5	11	10
5	Kalam	10	5	3

Write python code to do the following.

(i) Display the house names where the numbers of second prizes greater than 10.

(ii) Display the bottom 3 records.

(iii) Find output for the given statements:

```
x=SportsDay.columns[:1]
print(x)
```

OR (Option for part iii only)

Write a python code to create DataFrame "Vendor" with the following data.

	Vname	Item	Area	Qty
200	A	Chair	East	30
201	B	Table	West	45
202	C	Pen	South	23
203	E	Eraser	SW	12
204	F	Sketch Pen	NE	100

BEST OF LUCK