



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



*Time Allowed : 3 hours*

*Maximum Marks : 70*

**General Instructions:**

1. This question paper contains 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. An internal choice has been provided in the 2 marks question only.
8. All programming questions are to be answered using Python Language only.

**SECTION A**

1. The best known example of a \_\_\_\_\_ is the internet. 1
  - i) LAN
  - ii) MAN
  - iii) WAN
  - iv) PAN
2. Which among the following is not the violation of IPR? 1
  - i) Plagiarism
  - ii) Patent
  - iii) Copyright Infringement
  - iv) Trademark Infringement
3. The \_\_\_\_\_ has issued a formal set of guidelines for proper handling and disposal of e-waste. 1
  - i) Central Pollution Control Board (CPCB)
  - ii) Environmental Protection Act, 1986
  - iii) Department of Information Technology (DIT)
  - iv) Waste Electrical and Electronic Equipment (WEEE)
4. The return type of RTRIM( ) function is \_\_\_\_\_. 1
  - i) Numeric
  - ii) Bool
  - iii) String
  - iv) Date

5. Carefully observe the given table **Student** and predict the output while executing the following SQL statement? 1

SELECT AVG(MARKS) FROM STUDENT;

Rollno	Marks
101	20000
102	NULL
103	19000
104	NULL
105	19000
106	20000

- i) 13000  
ii) 19500  
iii) 19000  
iv) 20000
6. Which among the following is not a FOSS? 1
- i) Linux  
ii) GIMP  
iii) Blender  
iv) Microsoft Office

7. Consider the table **CAR**: 1

CCODE	CNAME	COMPANY	COLOR
111	BALENO	SUZUKI	BLUE
112	INDIGO	TATA	BLACK
113	A6	AUDI	WHITE
114	INNOVA	TOYOTA	BLACK
115	GLC	MERCEDES	WHITE

Choose the command that will give the output as:

COLOR
BLU
BLA
BLU

- i) SELECT RIGHT(COLOR,3) FROM CAR WHERE COLOR LIKE 'B%';  
ii) SELECT LEFT(COLOR,3) FROM CAR WHERE COLOR LIKE 'B%';  
iii) SELECT MID(COLOR,3) FROM CAR WHERE COLOR LIKE 'B%';  
iv) SELECT INSTR(COLOR,3) FROM CAR WHERE COLOR LIKE 'B%';
8. Which one of the following is a Scalar function? 1
- i) MOD( )  
ii) AVG( )  
iii) SUM( )  
iv) COUNT( )

9. Name the SQL function used to count the number of characters in a given string. 1
- i) COUNT( )
  - ii) SIZE( )
  - iii) LENGTH( )
  - iv) TOTAL( )
10. How many times the word 'Python' will be printed in the given Series **S**: 1
- ```
import pandas as pd
S=pd.Series('Python', index=range(10,25,5))
print(S)
```
- i) 3
  - ii) 4
  - iii) 5
  - iv) 6
11. \_\_\_\_\_ is the command used to install Pandas library. 1
- i) install pip Pandas
  - ii) pandas install pip
  - iii) pip install pandas
  - iv) pip install Pandas
12. By default, read\_csv( ) function uses the values of the first row as column header in a DataFrame. Which argument should be used to ensure that the first row's data is used as data and not as a column header? 1
- i) header = 0
  - ii) header = None
  - iii) header = False
  - iv) header = NaN
13. \_\_\_\_\_ is not a complete program and is used to add only a particular functionality to the browser. 1
- i) Add-on
  - ii) Plug in
  - iii) Cookies
  - iv) Search Engine
14. Write the output of the following SQL command: 1
- ```
SELECT ROUND(645.28,-2);
```
- i) 645.28
  - ii) 645
  - iii) 640
  - iv) 600

15. GPL stands for \_\_\_\_\_. 1
- i) Guided Public License
  - ii) Global Public License
  - iii) General Public License
  - iv) Golden Public License
16. Ameera has received a mail that she has won ₹ 5 Crores in a lucky draw. She is asked to share her bank details to claim this prize amount by clicking on the given link. What kind of cybercrime is this? 1
- i) Hacking
  - ii) Phishing
  - iii) Identity Theft
  - iv) Cyber Stalking

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 URL stands for Uniform Resource Locator. 1  
**Reason:** It tells the web browser where to go on the Internet to fetch the desired information.
18. **Assertion:** A DataFrame is 1D array with heterogeneous data. 1  
**Reason:** To access subset of a DataFrame, loc[ ] and iloc[ ] methods can be used.

### SECTION B

19. While going through the book 'Introduction to Networking', Amit got confused with the terms IP Address and MAC address. Help him to understand the difference between IP address and MAC address with at least two points. 2

OR

Write any two advantages and disadvantages of Star Topology.

20. Varun created a SQL table **Library** having fields LibID, BookName, Author and Price. He inserted 12 records and executed the following commands. 2

**Command 1:** SELECT COUNT(AUTHOR) FROM LIBRARY;

**Command 2:** SELECT COUNT(PRICE) FROM LIBRARY;

- i) He got the output as 7 and 8 for Command 1 and Command 2 respectively. What does it infer?
- ii) What will be the output, if he executes the statement?  
`SELECT COUNT(*) FROM LIBRARY;`  
 Also justify the answer.

21. Explain the purpose of HAVING clause in SQL with a suitable example. 2

22. Create the given Series **Student** using the Dictionary: 2

index {	Megha	78
	Samiya	96
	Amaan	97
	Teena	100
	Zeeshan	69

23. List any four e-waste hazards on the environment. 2

**OR**

Mention any four ways to prevent hacking.

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

```
>>>import pandas as pd
>>>A=[7,8,9,10]
>>>S=pd.Series(data=A*2)
>>>print(S[S%2==0])
```

25. Observe the given DataFrame **Item** carefully: 2

	ItemID	ItemName	Price
0	I100	Pen	35
1	I101	Notebook	120
2	I102	Eraser	15

Write the Python statement to do the following:

- i) To insert a new column 'Quantity' with the values [80,55,30] before the column 'Price'.
- ii) To delete the column Price permanently.

### SECTION C

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

3

**Table : Furniture**

Fcode	NAME	PRICE	MANUFDATE	WCODE
10023	Coffee table	4000	19-DEC-2016	W03
10001	Dining table	20500	12-JAN-2017	W01
10012	Sofa	35000	06-JUN-2016	W02
10024	Chair	2500	07-APR-2017	W03
10090	Cabinet	18000	31-MAR-2015	W02

- SELECT UPPER(RIGHT(NAME,5)) FROM FURNITURE WHERE WCODE='W01';
- SELECT LENGTH(NAME) FROM FURNITURE WHERE PRICE<4000;
- SELECT MOD (PRICE, MONTH(MANUFDATE)) FROM FURNITURE WHERE YEAR(MANUFDATE)=2015;

27. Create the given DataFrame **df**:

3

	Name	Marks	Grade
R001	Vijaya	80	B1
R002	Rahul	92	A2
R003	Meghna	67	C
R004	Rohita	95	A1

28. Consider the given DataFrame **Employee**:

3

	EName	Salary
0	Atharv	32000
1	Cyril	37000
2	Meera	25000

Write suitable Python statements for the following:

- Add a new Employee 'Teena' having Salary 28000.
- To sort the employees in the descending order of their salaries.
- To rename the column 'Salary' to 'ESalary'.

29. Priyanka is using her internet connection to book a flight ticket. This is a classic example of leaving a trail of web activities carried by her. 3

- i) What do we call this type of activity?
- ii) What is the risk involved by such kind of activity?
- iii) What are the classification this activity?

**OR**

Sherin has many electronic gadgets which are not usable due to outdated hardware and software. Help her to find any three best ways to dispose the used electronic gadgets.

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

No	Name	Age	Department	Dateofadmin	Charge	Sex
1	Arpit	62	Surgery	21/01/06	300	M
2	Zayana	18	ENT	12/12/05	250	F
3	Kareem	68	Orthopedic	19/02/06	450	M
4	Abhilash	26	Surgery	24/11/06	300	M
5	Dhanya	24	ENT	20/10/06	350	F
6	Siju	23	Cardiology	10/10/06	800	M

- i) Display the number of patients gender wise.
- ii) Display the average charge of each department.
- iii) Display the year wise highest charge.

**OR**

Discuss the significance of ORDER BY clause in detail with the help of suitable example.

### SECTION D

31. Write suitable SQL query for the following: 5

- i) Round off the value 345.972 to two decimal places.
- ii) Display 3 characters extracted from 3<sup>rd</sup> position of the string 'MYSQL FUNCTIONS'.
- iii) Display the first position of occurrence of string 'IN' in the string 'PROGRAMMING'.
- iv) Display m raised to the n<sup>th</sup> power.
- v) To remove the leading white spaces from the column Name of the table 'ITEMS'.

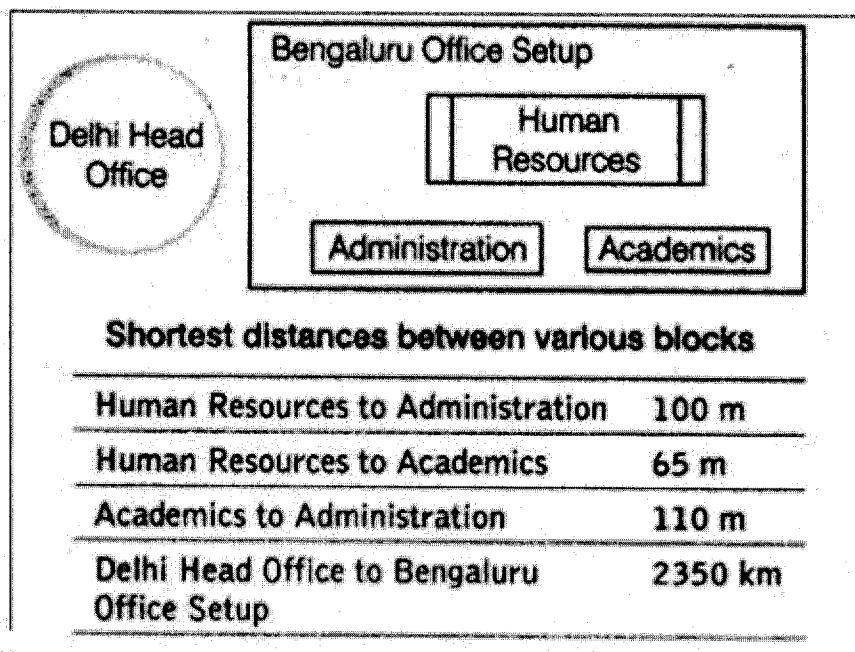
**OR**

Explain the following SQL functions using suitable examples.

- i) LOWER()
- ii) RIGHT()
- iii) MONTHNAME()
- iv) SUBSTR()
- v) MOD()

32. G.R.K International Inc. is planning to connect its Bengaluru Office setup with its Head Office in Delhi. The Bengaluru Office is spread across an area of approximately 1 square kilometer consisting of 3 blocks. Human Resources, Academics and Administration. You as network expert have to suggest answers to the four queries (i) to (v) raised by them.

5



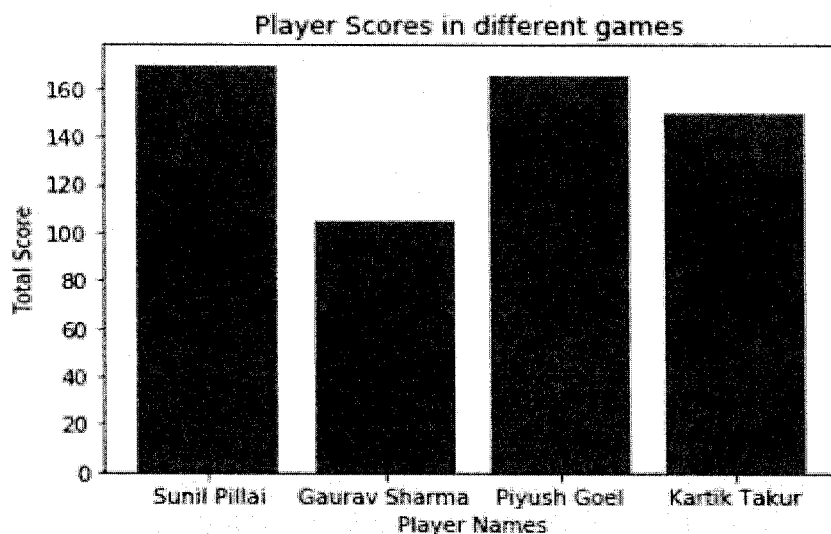
Number of computers installed at various blocks	
BLOCK	Number of Computers
Human Resources	155
Administration	20
Academics	100
Delhi Head Office	20



- i) Suggest the most suitable block in the Bengaluru Office setup, to host the server. Give a suitable reason with your suggestion.
- ii) Suggest and draw the cable layout among the various blocks within the Bengaluru Office setup for connecting the blocks.
- iii) Suggest a suitable networking device to be installed in each of the blocks essentially required for connecting computers inside the blocks with fast and efficient connectivity.
- iv) Suggest the most suitable media to provide secure, fast and reliable data connectivity between Delhi Head Office and the Bengaluru Office.
- v) Which service and protocol will be most helpful to conduct live interactions of experts from Delhi Head Office to Bangalore Office?

33. Write Python code to plot a Bar chart for Player Scores in different games as shown below:

5



Also give suitable Python statement to save this chart.

**OR**

Write a Python program to plot a Line chart based on the given data to depict the Final Marks of four students.

```
Names=['Abida', 'Zamiya', 'Manju', 'Simran']
```

```
Final_Marks=[90, 92, 88, 94]
```

## SECTION E

34. Sharon, a database administrator has designed a database for a travel agency. Help him by writing answers of the following questions based on the given table: 1+1+2

**Table: PASSENGERS**

PNR	TNO	PNAME	GENDER	AGE	TRAVELDATE
P001	13005	R N AGRAWAL	MALE	45	2018-12-25
P002	12015	P TIWARY	MALE	28	2018-11-10
P003	12015	S TIWARY	FEMALE	22	2018-11-10
P004	12030	S K SAXENA	MALE	42	2018-10-12
P005	12030	S SAXENA	FEMALE	35	2018-10-12
P006	12030	P SAXENA	FEMALE	12	2018-10-12
P007	13005	N S SINGH	MALE	52	2018-05-09
P008	12030	J K SHARMA	MALE	65	2018-05-09
P009	12030	R SHARMA	FEMALE	58	2018-05-09

- Write a query to display passenger names in lowercase.
- Write a query to display name of the passengers travelled in the month of 'October'.
- Write a query to display total number of MALE and FEMALE passengers.

### OR (Option for part iii only)

Write a query to count month wise total number of passengers.

35. Assume a DataFrame **df** that contains data about climatic conditions of various cities with C1, C2, C3, C4 and C5 as indexes shown below. 1+1+2

Answer the following questions:

	City	MaxTemp	MinTemp	RainFall
C1	Delhi	40	32	24.1
C2	Bengaluru	31	25	36.2
C3	Chennai	35	27	40.8
C4	Mumbai	29	21	35.2
C5	Kolkata	39	23	41.8

A) Predict the output of the following Python statement:

- df.size
- df.iloc[:,1:2]

B) Write Python statement to display the data of indexes C3 and C4.

### OR (Option for part B only)

Write Python statement to update the MinTemp of Chennai City to 28.