

## INFORMATICS PRACTICES (065)

TIME: 03 HOURS

M.M.: 70

### 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. Which is called a smart HUB?  
i. Gateway                      ii. Switch                      iii. Hub                      iv. Repeater
2. The e-Waste disposal and proper recycling is very much necessary and important for the benefit of people, environment and the nation. Find out from the following which one is not a benefit from e-Waste disposal-  
i. Protects public health and water quality  
ii. Saves landfill space  
iii. Saves money and time  
iv. Allows for recovery of valuable precious metals
3. \_\_\_\_\_ is the practice of taking someone else's work or ideas and passing them off as one's own:  
i. Plagiarism                      ii. Copyright                      iii. Patent                      iv. All of the above
4. Predict the output of the following query:  
SELECT round (99.99);  
i. 99                      ii. 99.9                      iii. 99.00                      iv. 100
5. Which of the following SQL functions does not belong to the String functions category?  
i. LEFT()                      ii. ROUND()                      iii. LENGTH()                      iv. RTRIM()
6. Which of the following is not a wireless medium for communication?  
i. Satellite                      ii. Bluetooth                      iii. OFC                      iv. Microwave
7. Which function will be used to read data from a CSV file into pandas data frame?  
i. readcsv()                      ii. to\_csv()                      iii. read\_csv()                      iv. csv\_read()
8. Which SQL statement do we use to find out the total number of names present in a row-“NAME” in a table “EMP”?  
i. SELECT SUM(NAME) FROM EMP;  
ii. SELECT COUNT (NAME) FROM EMP;  
iii. SELECT SUM ( ALL NAME) FROM EMP;  
iv. SELECT SUM (COUNT(\*)) FROM EMP;
9. Predict the output of the following query:  
SELECT UCASE (SUBSTR ('substr all',1,3));  
i. UBS                      ii. SUB                      iii. ALL                      iv. None of these
10. The name “Pandas” is derived from the term:  
i. Panel Data                      ii. Panel Series                      iii. Python Document                      iv. Panel Data Frame
11. In SQL, which function is used to display serial number of month?  
i. Month ()                      ii. MonthNumber ()                      iii. CurrentMonth ()                      iv. MonthName()
12. The following code creates a dataframe named 'D1' with \_\_\_\_\_ rows.  
import pandas as pd  
D1 = pd.DataFrame([0,1,2,3] )  
print(D1)  
i. 1                      ii. 2                      iii. 3                      iv. 4
13. A \_\_\_\_\_ is a unique data trace of a user's activities, actions, communications or

transactions in digital media.

- i. Digital Handprint                      ii. Digital Footprint                      iii. Offline Footprint                      iv. Offline Handprint

14. In SQL, the equivalent of SUBSTR() is:

- i. LCASE ()                      ii. MID()                      iii. INSTR()                      iv. RIGHT ()

15. When you visit a website, it will open the page set as \_\_\_\_\_ of the website-

- i. front page                      ii. master page                      iii. home page                      iv. first page

16. Data protection refers to protecting data from:

- i. Substantial Harm                      ii. Embarrassment                      iii. Inconvenience and unfairness                      iv. All of these

17. **Assertion(A):** Internet cookies are text files that contain small pieces of data, like username, password and user's preferences while surfing the internet.

**Reason(R) :** To make browsing the internet faster and easier, it's required to store certain information on the server's computer.

- i. Both A and R are true and R is the correct explanation of A.  
ii. Both A and R are true but R is not the correct explanation of A.  
iii. A is true but R is false.  
iv. A is false but R is true

18. **Assertion (A):-** To use the Pandas library in a Python program, one must import it.

**Reasoning (R):** - The only alias name that can be used with the Pandas library is pd.

- 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

## **SECTION B**

19. When a repeater is used in a computer network?

OR

Shanti is doing a course in networking. She is unable to understand the concept of Modem. Help her by explaining it.

20. The Python code written below has syntactical errors. Rewrite the correct code and underline the corrections made.

```
Import pandas as p
D={"A":["ClassA","ClassB","ClassC"],"B":[12,11,10,9]}
df= Pd.dataframe(D)
Print(df)
```

21. Consider the given SQL string:

“Need to study Computer for better future”

Write suitable SQL queries for the following:

- i. Returns the position of the first occurrence of the substring “tu” in the given string.  
ii. To extract the substring –“to study” from the string.

22. What will be the output of the following code:

```
import pandas as pd
A=pd.Series([23,79,53,91,20,65])
print(A.sort_values(ascending=False))
```

23. What do you mean by Identity theft? Explain with the help of an example.

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

```
import pandas as pd
data=[['Lalyani', 25],['Basish',35], ['Mamya',45]]
df1=pd.DataFrame(data, columns=['FName', 'PAge'])
print(df1)
```

25. Explain the use of YEAR() function with an example.

## **SECTION C**

26. Consider the table STUDENT given below write suitable SQL queries for the following:

RollN	Name	Class	City	Marks
o				

1	Anand	XI	Agra	430
2	Chetan	XII	Mumbai	460
3	Geet	XI	Agra	470
4	Preeti	XII	Mumbai	492
5	Saniyal	XII	Delhi	360
6	Maakhiy	XI	Dubai	256
7	Neha	X	Moscow	324
8	Nishant	X	Moscow	429

- Display city wise no of students present in the table.
- Display class wise highest marks .
- Display the records in the descending order of Name.

**OR**

Predict the output of the following queries based on the table STUDENT given above:

- SELECT LEFT(Name,2) FROM STUDENT WHERE MARKS=360;
- SELECT Class,MIN(Marks) FROM STUDENT Group by Class Having MIN(Marks)>350;
- SELECT City,MAX(Marks) – MIN(Marks) from STUDENT group by City;

27.Create a DataFrame in Python from the given dictionary also write the output:

```
Dict1={'Name':[ 'Divya', 'Mamta', 'Payal', 'Deepak'],
      'Department':['HR','Marketing','IT','Sales'],
      'Salary':[456788,564353,980776,526872]}
```

28.Write MySQL statements for the following:

- To create a database named SCHOOL.
- To create a table named SUBJECTS based on the following specification :-

Column Name	Data type	Constraints
Sub_No	Integer	Primary Key
Sub_Name	Varchar(25)	
Sub_Teacher	Varchar(30)	
Sub_Classes	Integer	

- Delete the column Sub\_Classes from the table SUBJECTS.

29. Explain the role of online social media campaigns, crowd sourcing and smart mobs in society .

**OR**

Mention any three health hazards associated with inappropriate and excessive use of gadgets.

30.Consider the following DataFrame,MFrame-

```
A  B  C
0  1  4  7
1  2  5  8
2  3  6  9
```

Write commands to-

- Add a new row with the values 10,11,12
- Delete the column B
- Rename the Column "C" to "2<sup>nd</sup>"

### **SECTION D**

31. Imagine Ponam manages database in an Organization .For record keeping purposes, she created a table named PERSON. ' The 'PERSON' table has columns for 'PID' (Primary Key), 'PName', 'DOB', 'Gender,'Address' and 'Salary'. The following scenarios represent different information management tasks:

- Restoring : The salaries need to increase by all person by 10%
- Person Availability Check: You need to check the availability of an address named "Guwahati"

among the females.

iii) Searching records: The names and salaries of all persons where names are starting with 'K' and salary less than Rs.26000.

iv) Missing values: Identify the person that don't have any address.

For each scenario, provide the SQL statements to perform the necessary action.

32.Sagar, a Data Analyst with a multinational brand has designed the DataFrame df that contains the four quarter's sales data of different stores as shown below:

	Store	Qtr1	Qtr2	Qtr3	Qtr4
0	Store1	700	300	450	200
1	Store2	950	400	500	300
2	Store3	650	800	100	400

Answer the following questions:

i. Predict the output of the following python statement:

a. print(df.shape)

b. print(df.iloc[1:2,1:3])

c. print(df[['Qtr2','Qtr4']])

d. print(df.loc[1,'Qtr1'])

ii. Delete the first row from the DataFrame.

iii. Write Python statement to add a new column Total\_Sales which is the addition of all the 4 quarter sales.

**OR**

**(Option for part iii only)**

Write Python statement to export the DataFrame to a CSV file named data.csv stored at D: drive.

### **SECTION E**

33. Attempt the following questions:

(i) Write a SQL query to calculate the modulus of 62 by 10.

(ii) Write a SQL query to retrieve the current month.

(iii) Write a SQL query to extract the last four characters from the string 'Milkybar!'.

(iv) Write a SQL query to convert the text in the 'Address' column of the 'Person' table to lowercase.

(v) Write a SQL query to display the position of 'abc' in values of Name column of table EMP

**OR**

Observe the given tables carefully and attempt the following questions:

Table:-Employee

Eno	Ename	Job	Salary
1001	Adam	Doctor	150000.00
1002	Amaal	Engineer	165000.00
1003	Ali	Doctor	180000.00
1004	Simran	Manager	125000.00
1005	Rabil	Manager	185000.00

Table:-Location

LNO	Location	ENo
1	Kolkata	1004
2	Mumbai	1002
3	Delhi	1003
4	Goa	1001

(i) Identify the column based on which both the tables can be related or joined. Also justify your answer.

(ii) Write a SQL query to list names of all employees name with their salary in descending order.

(iii) Write a SQL query to find the sum of salaries for all jobs.

(iv) Write a SQL query to display EName and corresponding Location for all employees .

(v) Write a SQL query to display EName,Job and Location for all employees whose salary is above 150000.00.

34. A large company campus with multiple departments and buildings is planning to establish an efficient

network infrastructure to connect its various facilities. The campus comprises five main buildings, each with specific distance and computer requirements:

Distance between various buildings:

Building A to Building B: 70 meters

Building B to Building C: 50 meters

Building C to Building D: 60 meters

Building D to Building E: 40 meters

Building E to Building C: 60 meters

Building D to Building A: 220 meters

Building D to Building B: 160 meters

Building E to Building B: 85 meters

Each building hosts a varying number of computers:

Building A: 65 computers

Building B: 120 computers

Building C: 90 computers

Building D: 75 computers

Building E: 90 computers

Based on the above specifications, answer the following questions:

- (a) Suggest a possible cable layout for connecting the buildings in an efficient and effective way.
- (b) Name the topology used for above cable layout.
- (c) Suggest the most suitable place to install the server of this organisation.
- (d) Suggest the placement of the following devices. (i) Hub/Switch (ii) Repeater
- (e) The company wants to link its head office in 'A' building to its Office in China. What type of network this connection result into?

35. Write a python program to plot a line chart with an appropriate chart title and both axis labels based on the given data to depict the weekly sales patterns for all the seven days.

Day=[1,2,3,4,5,6,7]

Sales\_patt=[20,30,50,20,60,70,50]

Also, give suitable python statement to save this chart in d: drive of the computer with name 'Sales.png'.

OR

The weights of 10 students of eighth grade are given below:

Weight\_cms=[55,60,65,60,70,70,80,90,70,80]

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.

