

# INFORMATICS PRACTICES(065)

## SAMPLE PAPER

### 2023-24

Time – 3 Hrs

Marks- 70

#### General Instructions:

1. This question paper contains five sections, Sections A to E.
2. All questions are compulsory.
3. Section A has **18** questions carrying **01** mark each. Question **17** and **18** is of assertion and reason type.
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** Long Answer type questions carrying **04** marks each. One internal choice is given in **Que 32** against part c only.
7. Section E has **03** Long Answer type questions carrying 05 marks each. **Que 33** and **Que 35** has or option.
8. All programming questions are to be answered using **Python Language** only.

#### Section – A (Choose the correct option out of the given options)

- Que. 1:** Network between Mobile and Laptop is an example of : [1]  
(A) LAN (B) MAN  
(C) PAN (D) WAN
- Que. 2:** The Following is automatically granted to the creator or owner of any invention: [1]  
(A) Parent (B) Copyright  
(C) Trademark (D) License
- Que. 3:** The information/art/work that exists in digital form is called \_\_\_\_\_. [1]  
(A) e-work (B) e-asset  
(C) digital property (D) e-property
- Que. 4:** Predict the output of the following query: [1]  
SELECT CURDATE()+14;  
(A) 20231138 (B) 2023-12-08  
(C) Error will be displayed (D) None of the above
- Que. 5:** Which of the following SQL functions does not belong to the String functions category? [1]  
(A) Length() (B) Mod()  
(C) Substr() (D) Mid()
- Que. 6:** Which of the following is a type of cybercrime where objectionable and demeaning comments. [1]  
are posted on social media platform about a person, such that he/she is mentally harassed?  
(A) Phishing (B) Spoofing  
(C) Cyber Bullying (D) Fraud
- Que. 7:** While reading from a CSV file, to use a column's values as index labels, argument given in [1]  
read\_csv() is :  
(A) index (B) index\_col  
(C) index\_values (D) index\_label
- Que. 8:** Which SQL statement do we use to find out the total number of different cities [1]  
present in the table CLUB in a column city?  
(A) SELECT DISTINCT(COUNT CITY) FROM CLUB;  
(B) SELECT COUNT(DISTINCT CITY) FROM CLUB;  
(C) SELECT SUM(DISTINCT CITY) FROM CLUB;  
(D) SELECT COUNT(DISTINCT \*) FROM CLUB;

- Que. 9:** Predict the output of the query. [1]  
`SELECT DAYOFYEAR('2023-06-23');`  
 (A) 21 (B) 23  
 (C) 31 (D) NULL
- Que. 10:** To get a number representing number of axes in a dataframe df1, \_\_\_\_\_ [1]  
 attribute may be used.  
 (A) size (B) shape  
 (C) values (D) ndim
- Que. 11:** Which of the following is not a valid function in MySQL? [1]  
 (A) len() (B) char()  
 (C) mid() (D) mod()
- Que. 12:** To display first 3 elements of a Series object S, you may write \_\_\_\_\_. [1]  
 (A) S[:3] (B) S[3:]  
 (C) S[3] (D) all of these
- Que. 13:** Sanya received an email warning her of closure of her bank accounts if she did not update [1]  
 her banking information asap. She clicked the link in the email and entered her banking  
 information. Next, she got to know was 'she was duped'. This is an example of \_\_\_\_\_.  
 (A) Online fraud (B) Repeater  
 (C) Plagiarism (D) Phishing
- Que. 14:** Predict the output of the query. [1]  
`SELECT MONTH('2023-06-23') * pow(3,2);`  
 (A) 207 (B) 54  
 (C) 48 (D) None of these
- Que. 15:** A \_\_\_\_\_ is a collection of web pages which are digital files generally written [1]  
 using HTTP?  
 (A) Website (B) Webserver  
 (C) Webpage (D) Webhost
- Que. 16:** A research student is expected to write a thesis on a topic. The student browses Internet for [1]  
 The topic and luckily finds it on the Internet. He copies and submits the entire thesis as his own  
 research work. Which of the following activities appropriately categorizes the act of the writer  
 (A) Spamming (B) Plagiarism  
 (C) Phishing (D) Trojan
- In the following questions 17 and 18, a statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice as :**
- (A) Both A and R are true and R is the correct explanation of A.  
 (B) Both A and R are true but R is not the correct explanation of A.  
 (C) A is true but R is false (or partly true).  
 (D) Both A and R are false or not fully true.
- Que. 17: Assertion.** (A) Internet cookies are the text files that contain small pieces of data, like a [1]  
 a username, password and user's preferences while surfing the Internet.  
**Reason.** (R) To make browsing the Internet faster and easier, its required to store certain information  
 on the server's computer.  
 (A) (A) (B) (B)  
 (C) (C) (D) (D)
- Que. 18: Assertion.** (A): A dataframe is a 2D data structure which is value and size mutable. [1]  
**Reason.** (R) : Every change in a dataframe internally creates a new dataframe object.  
 (A) (A) (B) (B)  
 (C) (C) (D) (D)

### Section – B

#### (Very Short Answer Type Questions)

- Que. 19:** What is the difference between static and dynamic web page? [2]  
 Or  
 Explain the term website and web browser.
- Que. 20:** Write the correct output on execution of the following Pandas code : [2]

```
import pandas as pd
df=pd.DataFrame( { "A":["P01','P02','P03'], "B":["Pen','Pencil','Eraser']} )
df=df.rename(columns={"A":"PID", "B":"PNAME"})
df=df.rename(index={0:'A',1:'B',2:'C'})
print(df)
```

**Que. 21:** Consider the given SQL string: [2]  
 “Clean India, Green India”

Write suitable SQL queries for the following:

- (a) Returns only ‘an India’ which occurs first in the given string.
- (b) To return the position of ‘Green’ in the given string.

**Que. 22:** What will be an output of the following code given below. [2]

```
import pandas as pd
A = pd.Series(data = [45,55,65,35,85])
```

- (a) print(A>45)
- (b) print(A[A>45])

**Que. 23:** Define the term Intellectual Property Rights and Digital Footprints. [2]

**Que. 24:** Write a program in Python to create a Series ‘St’ as given below and also write code to display ‘UP’ only. [2]

```
Gandhinagar    Gujarat
Satna          MP
Patna          Bihar
Kanpur         UP
```

**Que. 25:** State any two differences between single row functions and multiple row functions. [2]  
 Also write any two examples of them with SQL command and its output.

### Section – C

#### (Short Answer Type Questions)

**Que. 26:** A relation Vehicles is given below: [3]

V_no	V_Type	Company	Price	Qty
AW125	Wagon	Maruti	250000	25
J0083	Jeep	Mahindra	4000000	15
S9090	SUV	Mitsubishi	2500000	18
M0892	Mini van	Datsun	1500000	26
W9760	SUV	Maruti	2500000	18
R2409	Mini van	Mahindra	350000	15

Write SQL commands to

- (a) Display the average price of each V\_type of vehicle having quantity 20.
- (b) Count the type of vehicles manufactured by each company.
- (c) Display V\_no and (Price \* Qty) under the column heading Total\_Price.

**Que. 27:** Create a DataFrame in Python Vehicles as given below. Also write code to add a column [3]  
 Total in which Price \* Qty is displayed.

	V_Type	Company	Price	Qty
A	Wagon	Maruti	250000	25
B	Jeep	Mahindra	4000000	15
C	SUV	Mitsubishi	2500000	18
D	Mini van	Datsun	1500000	26
E	SUV	Maruti	2500000	18
F	Mini van	Mahindra	350000	15

**Que. 28:** (a) Write a query in MySQL that displays the data of table flight on the basis of the column FName whose source\_city column does not contain any value. [1+2=3]

(b) How Group By clause is different from Order By clause?

**Que. 29:** Preeti celebrated her birthday with her family. She was excited to share the moments with her friend Himanshu. She uploaded selected images of her birthday party on a social networking site so that Himanshu can see them. After few days, Preeti had a fight with Himanshu. Next morning, she deleted her birthday photographs from that social networking site, so that Himanshu cannot access them. Later in the evening, to her surprise, she saw that one of the images which she had already deleted from the social networking site was available with their common friend Gayatri. She hurriedly enquired Gayatri "Where did you get this picture from?". Gayatri replied "Himanshu forwarded this image few minutes back".

Help Preeti to get answers for the following questions. Give justification for your answers so that Preeti understands it clearly.

- (a) How can could Himanshu access an image which I had already deleted?
- (b) Can anybody else also access these deleted images?
- (c) Had these images not been deleted from my digital footprint?

Or

Write any three rules of netiquettes.

**Que. 30:** Given a DataFrame namely "employee" that stores the details of employees: [3]

	Name	Designation	Salary	Bonus
E101	Atul	Manager	56000	15000
E102	Raj	Clerk	25000	7000
E103	Darpan	Analyst	35000	9000
E104	Anmol	Clerk	28000	13000
E105	Piyush	Manager	58000	12000

Write suitable Python statements for the following:

- (a) Write a statement to display Name and Salary columns from the above DataFrame.
- (b) Write a statement to display all the information from Employee ids 'E102' to 'E104' (Both are included).
- (c) Write sample code to display all the information from Employee rowwise.

### Section – D

#### (Long Answer Type Questions)

**Que. 31:** Consider the table DRESS. Write SQL commands for the following statements: [4]

DCODE	DESCRIPTION	PRICE	MCODE	LAUNCHDATE
1001	FORMAL SHIRT	1250	M001	2018-01-12
1012	FROCK	750	M004	2007-09-09
1030	INFORMAL SHIRT	1450	M002	2008-06-06
1019	EVENING GOWN	850	M003	2006-07-08
1090	TULIP SKIRT	1250	M002	2007-03-31
1007	PENCIL SKIRT	850	M003	2008-06-19
1008	SLACKS	1450	M004	2008-10-20

- (a) Display Description, Price and Launchdate of dress which are launched in the month of June.
- (b) Display 5 characters from 3<sup>rd</sup> position of Description.
- (c) Display launchyear of DRESS whose description ends with Skirts only.
- (d) Sort the details of dress as per price in decreasing order.

**Que. 32:** Given below the dataframe ndf: [2+1+1=4]

	Col1	Col2	Col3	Res
T1	62.89	100.0	60.08	True
T2	94.73	98.5	59.22	True
T3	49.09	80.7	46.04	False
T4	38.48	45.7	58.62	False

- (a) (i) Change the value of T3 in Col2 from 80.7 to 90.6.  
(ii) What will be an output of the code given below:  

```
print(ndf.loc[ 'T2': 'T3', 'Columns':])
```
- (b) Write sample code to remove the column Res.  
(c) Write command to add another row with index as T5 and values as 88.6,92.3,87.7.

**OR**

**(Option for part (c) only)**

Write sample code to store detail of DataFrame ndf in a CSV file Score stored in c Drive. with default separator ‘:’.

### Section – E

**(Long Answer Type Questions)**

**Que. 33:** Write suitable queries for (a) to (c) and output for (d) and (e). [5]

- (a) Display the sum of ‘remainder of 18 divided by 5’ and ‘5 raised to 3’.  
(b) Convert the value 233.33675 to 233.34.  
(c) Remove the leading space from the string ‘ ICC World Cup 2023 ’ and display the length of the string.  
(d) Select INSTR( ‘ICC World Cup 2023’, ‘Cup’);  
(e) Select Dayofyear(“2023-11-27”)/3;

**OR**

Consider the table SPORTS given below. Write commands in MySQL for (i) to (v)

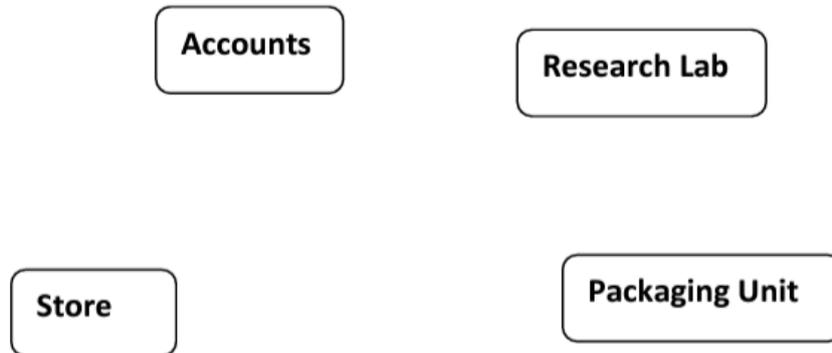
### SPORTS

SrNo	PName	Class	Game	Grade	Fees
1	Rehana	12	Cricket	A	53000
2	Sugandha	10	Football	B	88000
3	Saumil	11	Cricket	NULL	NULL
4	Pradip	10	Football	B	23000
5	Amrita	11	Carrom	A	75000
6	Suhani	12	Tennis	C	11000

Write SQL queries to the perform the following task:

- (a) To display the PNAME, Game and sum of FEES of all players as per their Grade.  
(b) Add a column GST of data type float and size (9,2).  
(c) Add another record of player as 7, Sanjana, 11, Carrom, A, 22000.  
(d) Increase fees of players by 5% whose grade is ‘A’.  
(e) To display PName, Game and Fees of players whose name contains ‘I’ as second last character.

**Que. 34:** 'SHANKUS MEDICAL AND RESEARCH CENTER' of MEHSANA has set up its new center in RAJKOT. It has four buildings as shown in the diagram given below: [5]



Distance between various buildings is as follows:

Accounts to Research Lab	55m
Accounts to Store	150m
Store to Packaging Unit	60m
Packaging Unit to Research Lab	70m
Accounts to Packaging Unit	25m
Store to Research Lab	80m

Number of Computers:

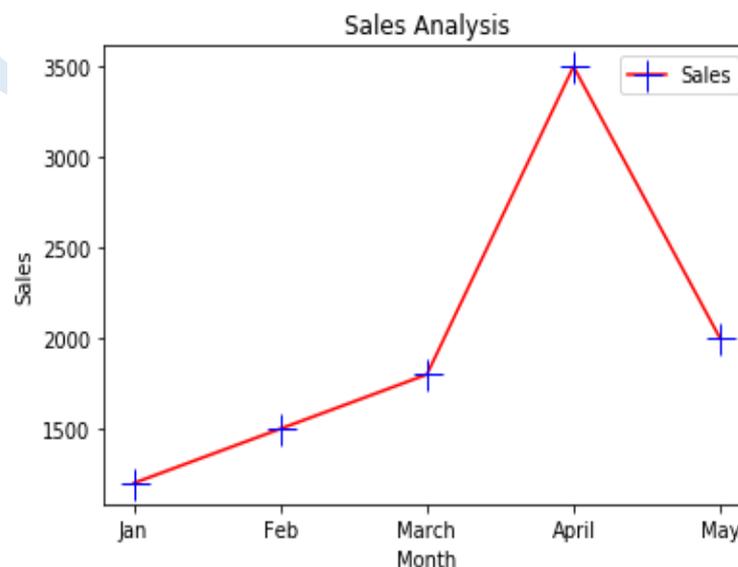
Office	No of Computers
Accounts	25
Research Lab	100
Store	15
Packaging Unit	60

As a network expert, provide the best possible answer for the following queries:

- Suggest a cable layout of connections between the buildings.
- Suggest the most suitable place (i.e. buildings) to house the server of this organization.
- Suggest the placement of the following device with justification:
  - Repeater
  - Hub/Switch
- Suggest a system (hardware/software) to prevent unauthorized access to or from the network.
- VoIP technology is to be used which allows one to make voice calls using a broadband internet connection. Expand the term VoIP and SMTP.

**Que. 35:** Write a program in Python to create the chart as given below with all its specification like: [5]

Line color is red. Marker color is blue. Size of marker is 15.



OR

Answer the following:

- (a) Using which function of PyPlot you can plot histogram?
- (b) The axis of a chart can be labelled using which function?
- (c) Write the syntax to install matplotlib library on your computer.
- (d) Which argument of bar( ) lets you set the thickness of bar?
- (e) Write name of the tool used for summarization of discrete or continuous data?

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