# TERM EXAMINATION- I

## 2024-25

**Name of the student:** **Date: 11.09.2024**
**Grade: XII** **Time: 3hrs**
**Subject: INFORMATICS PRACTICES (065)** **Marks: 70**

**General Instructions:**

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory. But internal choice is there for the questions 19, 26, 29, 32 (for option iv only), 33 and 35.
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.

## Section – A **1 X 18 = 18M**

1. Which of the following import statement is not correct?
   a. import pandas as class12
   b. import pandas as 12pd
   c. import pandas as pd12
   d. import pandas as pd
2. DML can be expanded as
   a. Data Monitoring Language
   b. Data Manipulation Language
   c. Data Multiple Language
   d. None of the above
3. What will be the output of the given code?
   ```
   import pandas as pd
   S = pd.Series([1101,1102,1103,1104,1104], index = ['sunny','bobby','ajay','ranveer','anil'])
   print(S['ajay'])
   ```
   a. 1101
   b. 1102
   c. 1103
   d. 1104
4. Which of the following is a DDL command?
   a. SELECT
   b. INSERT
   c. DROP
   d. DELETE
5. To iterate over vertical subsets of DataFrame, _____ function may be used.
   a. iteritems( )
   b. iterrows( )
   c. itercols( )
   d. iterate( )
6. Which of the following types of table constraints will prevent the entry of duplicate rows?
   a. Foreign Key
   b. Primary key
   c. Distinct
   d. Null
7. Pandas DataFrame is:
   a. Multidimensional
   b. 1 Dimensional
   c. 3 Dimensional
   d. 2 Dimensional
8. The number of attributes in a relation is called as
   a. Cardinality
   b. View
   c. Table
   d. Degree
9. The following function is not a numpy function.
   a. np.linspace
   b. np.arange
   c. np.tile
   d. np.linespace

10. The following is the command to remove the database ***westberry***
    a. Remove database westberry
    b. Delete database westberry
    c. Drop database westberry
    d. Drop westberry
11. What will be the output for the following python program?

    SS = pd.Series(['apple','banana','cherry','drum'],['a','b','c','d'])

    SS

    a.
    ```
    [5]: apple     a
         banana    b
         cherry    c
         drum      d
         dtype: object
    ```

    b.
    ```
    [9]: a     apple
         b    banana
         c    cherry
         d      drum
         dtype: object
    ```

    c.
    ```
    SyntaxError: positional argument follows keyword argument
    ```

    d. None of the above
12. Table name: Student

| Sno | Name | Marks |
|---|---|---|
| 1 | Mohan | 99 |
| 2 | Pavan | null |
| 3 | Sunitha | 77 |

    What is the the command to retrieve the 2nd row?
    a. Select * from student;
    b. Select * from student where marks = null;
    c. Select * from student where marks is null;
    d. None of the above
13. CSV stands for:
    a. Column separated value
    b. Class separated value
    c. Comma segregated value
    d. Comma separated value
14. Which of the following SQL function does not belong to the Math functions category?
    a. POWER( )
    b. ROUND( )
    c. LENGTH( )
    d. MOD( )
15. **Assertion (A):-** To use the numpy library in a Python program, one must import it.
    **Reasoning (R):-** The only alias name that can be used with the numpy library is np
    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
16. **Assertion (A) :-** ORDER BY clause is used to sort the records.
    **Reasoning (R) :-** For sorting, keywords ASC and DESC are used.
    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. In Python Pandas, while performing mathematical operations on Series, index matching is implemented and all missing values are filled in with _____ by default.
    a. Null
    b. Blank
    c. NaN
    d. Zero
18. In SQL, the equivalent of LCASE( ) is:
    a. LOWER ( )
    b. SMALLCASE( )
    c. LITTLECASE( )
    d. Both A and B

## Section – B 2 X 7 = 14M

19. Write the difference between Numpy and Pandas.

**Or**

Write the difference between Series and DataFrames.

20. Create a DataFrame from the given table and also give appropriate column headings as shown below:

| | | | |
|---|---|---|---|
| 0 | 11 | Rajesh | 56 |
| 1 | 12 | Likhith | 75 |
| 2 | 13 | Navya | 91 |
| 3 | 14 | Bhavva | 82 |

21. Consider the following relation and find the

a. Degree of the relation and b. The cardinality of the relation

| Roll | Name | Class | Marks |
|---|---|---|---|
| 1 | Rajesh | VII | 75 |
| 2 | Pavan | IX | 90 |
| 3 | Sunitha | VIII | 80 |

22. Write a Short notes on Database schema and Database Instance.
23. Predict the output of the given python code?

```
list = [-56, -883, -992]
ser = pd.Series(list*2)
print(ser)
```

24. Differentiate between CHAR and VARCHAR datatypes.
25. Consider the string 'WESTBERRY'. Write the MySQL commands to display the following output:

a. BERRY b. WEST

## Section - C 3 X 5 = 15M

26. Consider the following DataFrame df.

| | Private | Aided | Govt | ZP |
|---|---|---|---|---|
| AP | 100 | 75 | 125 | 89 |
| TN | 98 | 92 | 130 | 92 |
| TS | 110 | 85 | 110 | 91 |

Write a program in python to create the above DataFrame df and extract data from DataFrame df row wise.

**OR**

Write a program in python to create the above DataFrame df and extract data from DataFrame df column wise.

27. Explain what the following statements are doing? df is the name of a DataFrame

i. df.iloc[:3,]
ii. df.iloc[3,0]
iii. df.iloc[1:5,:5]
iv. df.iloc[1:4, ]
v. df.iloc[1:5,0]
vi. df.iloc[2:8,1:4]

28. Consider the following table student.

| Rno | name | class | DOB | marks |
|---|---|---|---|---|
| 1 | Nani | 6 | 2011-03-15 | 60 |
| 2 | Mohan | 6 | 2011-11-23 | 90 |
| 3 | Lakshmi | 8 | 2010-10-28 | 90 |
| 4 | Sunitha | 7 | 2009-12-15 | 82 |
| 5 | Naveen | 7 | 2010-03-20 | 70 |

a. Write the MySQL command to view the structure for the table student.

b. Write the MySQL command to change the DOB of the student 'Naveen' to '2009-12-28'.
c. Write the MySQL command to retrieve the students with 'N' as starting letter in their names.

29. Consider the above table student.
a. Write the MySQL command to display classwise average marks without decimal points.
b. Write the Output for the following MySQL command:
select mod(power(instr(name,'e'),2),5) from stud;
d. Write the MySQL command to retrieve the students whose DOB is between 2010-01-01 and 2011-08-15.

**OR**

a. Write the MySQL command to retrieve the students of the classes 6 and 7.
b. Write the MySQL command to delete the rows Sunitha and Lakshmi.
c. Write the Output for the following MySQL command:

select power(mod(day(dob),5),3) from stud where name = 'mohan';

30. Write the outputs for the following MySQL command.
a. SELECT ROUND(876.2345,2);
b. SELECT MOD(11,3);
c. SELECT POWER(4,3);

## Section – D 4 X 2 = 8M

31. Consider the table customer given below and write MySQL commands: TABLE: Customer

| CustID | Name | Country | Emailid |
|---|---|---|---|
| C1001 | Rajat | India | rajat@gmail.com |
| C1002 | Michael | Denmark | mic@yahoo.com |
| C1003 | Riyo | Thailand | Ri@gmail.com |
| C1004 | Jennifer | S.Korea | Jen@gmail.com |
| C1005 | Sudha | India | Sud@abc.com |
| C1006 | Vivek | Nepal | viv@xyz.com |

a. Write the MySQL command to add one more column with the name orderdate with data as (2022-12-22, 2023-11-15, 2022-05-06,2022-08-07,2023-01-01, 2023-04-14) to the above table.
b. Write the MySQL command to change the position of Emailid column before the column country in the above table customer.
c. Write the MySQL command to rename Emailid as custid in the above table customer.
d. Write the MySQL command to increase the datasize of country to varchar(50) in the above table customer.

32. Based on the below data write the python statements

| | Pavan | Srinu | Sunitha |
|---|---|---|---|
| Telugu | 56 | 90 | 78 |
| English | 75 | 91 | 64 |
| Maths | 82 | 98 | 96 |
| Science | 72 | 92 | 88 |
| Social | 68 | 85 | 76 |

a. Write the Python statement to import the data from csv file named marks which is stored in the folder myfolder in E: drive to the DataFrame df.
b. Write the Python statement to display first 3 rows only.
c. Write the Python statement to display only 2nd and 4th rows only.
d. Write the Python statement to make Srinu column as the index.

**OR**

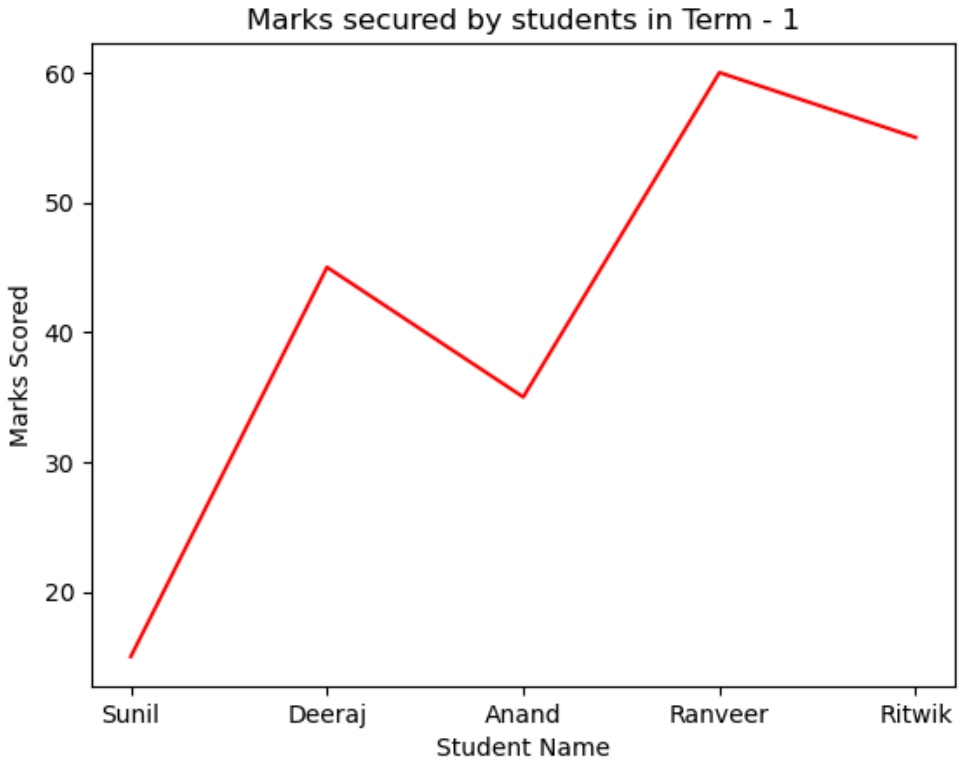
Write the Python statement to export the above data from dataframe df to csv file which has to store in the folder personal in D: drive.

## Section – E 5 X 3 = 15M

33. Consider the following graph. Write the Python code to plot it. Also add the Title, label for X and Y axis and specify the color to line graph as red. Use the following data for plotting the graph.

Marks = [15, 45, 35, 60, 55]

Names = [‘Sunil’,’Deeraj’,’Anand’,’Ranveer’,’Ritwik’]



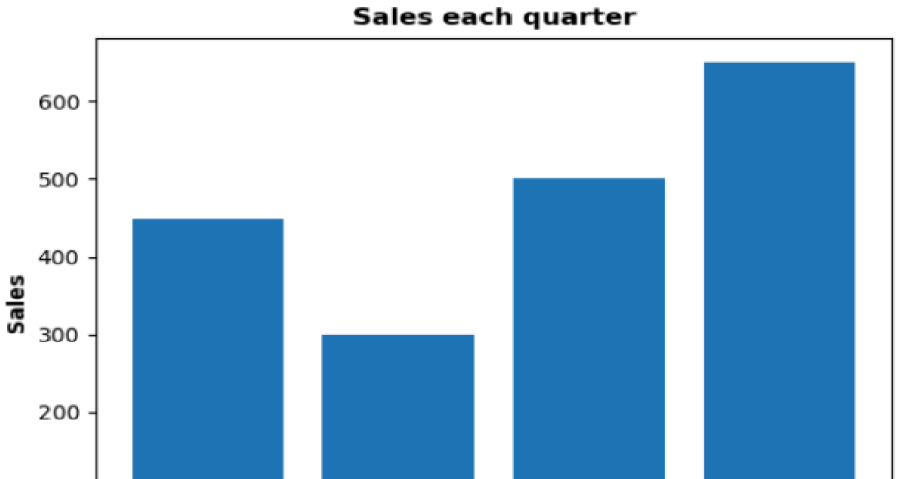

**OR**

Write the Python code to draw the following bar graph representing the total sales in each quarter. Add the Title, Label for X-axis and Y-axis and specify the color to the bar graph as green.

Use the following data for plotting the graph:

sales = [450, 300, 500, 650]

qtr = [“QTR1”,”QTR2”,”QTR3”,”QTR4”]



34. Write a program to plot ages of 20 citizens using histogram:

X = [23, 45, 21, 13, 34, 45, 56, 67, 87, 57, 83, 89, 45, 56, 67, 4, 1, 56, 67, 45]

35. Consider the following table.

| **name** | **owner** | **species** | **sex** | **birth** | **death** |
|---|---|---|---|---|---|
| Fluffy | Harold | cat | f | 1993-02-04 | NULL |
| Claws | Gwen | cat | m | 1994-03-17 | NULL |
| Buffy | Harold | dog | f | 1989-05-13 | NULL |
| Fang | Benny | dog | m | 1990-08-27 | 1999-10-22 |
| Bowser | Diane | dog | m | 1979-08-31 | 1995-07-29 |
| Chirpy | Gwen | bird | f | 1998-09-11 | NULL |
| Whistler | Gwen | bird | NULL | 1997-12-09 | NULL |
| Slim | Benny | snake | m | 1996-04-29 | 2000-01-29 |
| Puffball | Diane | hamster | f | 1999-03-30 | 2004-03-27 |

a. Write the MySQL command to create the above table.
b. Write the MySQL command to retrieve all the names of owner (only owner column).
c. Write the MySQL command to retrieve the rows whose values are not equal to NULL under death.
d. Write the MySQL command to retrieve all the rows where species is either cat or dog.
e. Write the MySQL command to delete the rows where species is bird.

**Or**

f. Write the MySQL command to create the above table.
g. Write the MySQL command to retrieve distinct species.
h. Write the MySQL command to retrieve all the rows whose birth date should be between 1994-01-01 to 1996-12-31.
i. Write the MySQL command to retrieve the rows whose values are equal to NULL under death.
j. Write the MySQL command to retrieve species = cat and sex = f or m.