PT-2/HALF YEARLY EXAMINATION, 2022-23

INFORMATICS PRACTICES

Time - 7:15 AM to 10:20 AM **Class - XII** **M.M. : 70**

Date – 07.09.2022 (Wednesday)

Name of the student _____ **Section** _____

General Instructions:

- Please read the instructions carefully.
- This Question Paper consists of **36** questions in **four** sections – Section **A**, **B, C & D.**
- Section A contains 11 **MCQ type** questions of 1 mark and 5 questions of 2 marks each.
- Section B contains 13 questions of 2 marks each.
- Section C contains 5 **Short Answer type** questions of 3 marks each.
- Section D contains 2 questions of 4 marks each.
- All questions of a particular section must be attempted in the correct order.

SECTION- A

MULTIPLE CHOICE QUESTIONS. **[1x11=11]**

Q.1 To get the transpose of a dataframe DF, you can write _____

a. DF.Transpose b. DF.Swap c. DF.T d. [DF].T

Q.2 To display third element of a Series object S, you will write _____

a. S[:3] b. S[2] c. S[3] d. S[:2]

Q.3 To get a number representing number of axes in a dataframe _____ attribute may be used.

a. size b. shape c. values d. ndim

Q.4 If a dataframe is created using 2D dictionary, then the column labels are formed from _____

a. dictionary's values b. inner dictionary's keys

c. outer dictionary's keys d. none of these

Q.5 To change the 5th column's values at 3rd row as 44 in dataframe df, you can write _____

a. DF[4,6]=44 b. DF[3,5]=44 c. DF.iat[4,6]=44 d. df.iat[3,5]=44

Q.6 The argument which will write NULL inplace of NaN values in CSV file is:

a. rep= "NULL" b. narep= "NULL" c. na_rep= "NULL" d. rep_na= "NULL"

Q.7 While creating DataFrame using CSV, to specify our own column name we use _____ argument.

a. name b. column c. columns d. names

Q.8 Which argument must be set with ploting functions for legends() to display the legends?

a. data b. label c. name d. sequence

Q.9 Which argument in hist() is used to create a stacked bar type histogram?

a. histt b. histtype c. type d. barstacked

Q.10 Which of the below given task cannot be performed through Data Manipulation Language (DML) commands?

a. Create table in the database b. Insert a record in a table.

c. Delete a record from a table. d. Modify a record into a table.

Q.11 What will be returned by the following query?

SELECT MONTH('2022-11-09');

a. 9 b. 11 c. November d. September

MULTIPLE CHOICE QUESTIONS. [2x5=10]

Q.12 Ahna has written the following code to create a dataframe with boolean index:

```
import numpy as np
import pandas as pd
df=pd.DataFrame(data=[5,6,7]], index=[true,false,true])
print(df)
```

While executing this code, she is getting an error, help her to rectify the code, from the options given below.

a) df=pd.DataFrame([True,False,True], data=[5,6,7])

b) df=pd.DataFrame(data=[5,6,7], index=[True,False,True])

c) df=pd.DataFrame([true,false,true], data=[[5,6,7]])

d) df=pd.DataFrame(index=[true,false,true],data=[[5,6,7]])

Q.13 Consider the following statements:

Statement A: .loc() is a label based data selecting method to selec a specific row(s) or column(s) which we want to select .

Statement B: .iloc() can not be used with default indices if customised indices are provided.

Select the correct option.

a) Statement A is true, but Statement B is false.

b) Statement A is false, but Statement B is true.

c) Statement A and Statement B both are false.

d) Statement A and Statement B both are true.

Q.14 _____ and _____ functions help you to iterate over a DataFrame.

Q.15 To suppress first row as header, which of the following argument is to be given in read_csv()?

a) noheader=True b) header=None c) skipheader=True d) header=Null

Q.16 Consider the following statements with reference to Line Chart:

Statement A: Line chart is tool for comparison and is created by plotting a series of several points and connecting them with a straight line.

Statement B: You should always use Line Chart when the chart is in a continuous data set.

a) Statement A is correct.

b) Statement B is correct.

c) Statement A is correct but Statement B is incorrect.

d) Statement A is incorrect but Statement B is correct.

SECTION - B

OBJECTIVE QUESTIONS: **[2x7=14]**

Q.17 DataFrame is _____ mutable as well as _____ mutable.

Q.18 The _____ argument of plot() specifies the style of the line and the _____ function is used to specify ticks for x-axis.

Q.19 One word answer:

a) Which function is used to create a histogram?

b) Which command is used to give heading of the graph?

Q.20 True or False:

a) The number of rows in a dataframe are by default equal to number of rows in CSV file, it created from a CSV file.

b) CSV file can only store comma separated values.

Q.21 What will be returned by the following query?

select truncate(215.79, -1), truncate(215.79,1);

Q.22 What will be returned by the following query?

select instr('INDIA','DI'), substr('INDIA',-4,3);

Q.23 Display output of the following functions:

a) SELECT DAYOFWEEK(NOW());

b) SELECT DAY('2022-09-07');

SUBJECTIVE QUESTIONS: **[2x6=12]**

Q.24 Given:

```
import pandas as pd
d={'one':pd.Series([1.,2.,3.], index=['a', 'b', 'c']), 'two': pd.Series([1.,2.,3.,4.], index=['a', 'b', 'c', 'd'])}
df1=pd.DataFrame(d, index=['d', 'b', 'a'])
df2=pd.DataFrame(d,index = ['d', 'a'], columns= [''two', 'three'])
print(df1)
print(df2)
```

What will the above code display ?

Q.25 Predict the output from the following MySQL statements:

a) SELECT ROUND(28.34), ROUND(32.76);

b) SELECT ROUND(28.38,1), ROUND(32.76, -1);

Q.26 Given a DataFrame 'DF' as follows:

	Yr1	Yr2	Yr3
Qtr1	34500	44900	54500
Qtr2	56000	46100	51000
Qtr3	47000	57000	34900
Qtr4	78000	76960	67830

Write appropriate python coding to extract the data from DF, row wise.

Q.27 Given a dataframe df1 as follows:

	1990	2000	2010
A	52	340	898
B	64	480	560
C	78	688	1102
D	94	766	889

Write Python code to create a line chart from the columns, 1990 and 2000.

Q.28 Create a bar chart plotting the three columns of the above given (refer Q.No. 26) dataframe df1.

Q.29 Write a program to read from sports.csv file(shown below and location of the file is "c:\data") where the separator is a tab character.

Sports.csv:

Sport	Competition	Prizes won
Tennis	14	9
Football	22	16
Chess	25	15

SECTION - C

Answer the following questions: **[3x5=15]**

Q.30 Give Python code to create the following DataFrame "Batsman" from a Dictionary:

B_No	Name	Score1	Score2
1	Sunil Pillai	90	80
2	Gaurav Sharma	65	45
3	Nilesh Kumar	78	100
4	Abhishek Tiwari	89	45

Perform the following operations on the DataFrame:

(i) Add both the scores of a batsman and assign to column "Total"

(ii) Display the highest score in both Score1 and Score2.

(iii) Display the DataFrame.

Q.31 If Ser is a series object having 30 values, then how are statements (i),(ii) and (iii) similar and different?

(i) print(Ser.head()) (ii) print(Ser.head(8)) (iii) print(Ser.tail(11))

OR

(i) Write a program to create a Series object S1 using a dictionary that stores the number of students in section of class 12 as per the following data:

A 56

B 67

C 34

D 43

E 50

(ii) Write Python statement to arrange the records of the series S1 in descending order.

(iii)Write a Python statement to display the data where more than 50 students are studying.

Q.33 Consider the following database table Students given below:

ADMN	NAME	CLS	SEC	RN	ADDRESS	PHONE
1211	MEENA	12	D	4	A-26	3245678
1212	VANI	10	D	1	B-25	5456789
1213	MEENA	12	A	1	NULL	NULL
1214	KARISH	10	B	3	AB-234	4567890
1215	SURAJ	11	C	2	ZW12	4345677

Write MySQL statements for the following:

(i) To extract the three characters starting from second position from the Name column.

(ii) To display the First letter of each name in capital letters and rest all the characters in lowercase.

(iii) To combine the Address with Name of the students and display.

Q.33 Write MySQL statements for the following tasks:

(i) Truncate the value 213.899 to two decimal places.

(ii) Round off the value 453.495 to two decimal places.

(iii) Find out the sign of the value -756;

Q.34 Write MySQL statements for the following tasks:

(i) Consider a field birth_date in EMPL table which stores the date of birth of an employee. Write a MySQL statement to calculate the approximate age of employees in terms of years.

(ii) Using the same field name birth_date of EMPL table, write appropriate MySQL statement which display the output in the following manner(if employee smith's birth_date is 1995-12-02 and his name is stored in the field Ename):

"Smith is born in the month of December"

(iii) Write MySQL statement to obtain the number of days passed in the current year.

SECTION - D

Answer the following questions: **[4x2=8]**

Q.35 Nitika is the activity incharge in a school. One of her student gave her an idea to use Python Pandas and Matplotlib for analysing and visualising the data respectively. She has created a DtatFrame "AnnualDay" to keep track of the number of First, Second and Third prizes won by different houses in various events.

	House	First	Second	Third
0	Nehru	5	8	3
1	Raman	3	5	7
2	Azad	6	2	5
3	Sarojini	5	3	2
4	Ramanujan	4	6	5
5	Tagore	3	8	2

Write Python command to do the following:

(i) Display the house names where the numbers of Second prizes are in the range of 5 to 8.

(ii) Display all the records in reverse order.

(iii) Display the output of the following statement.

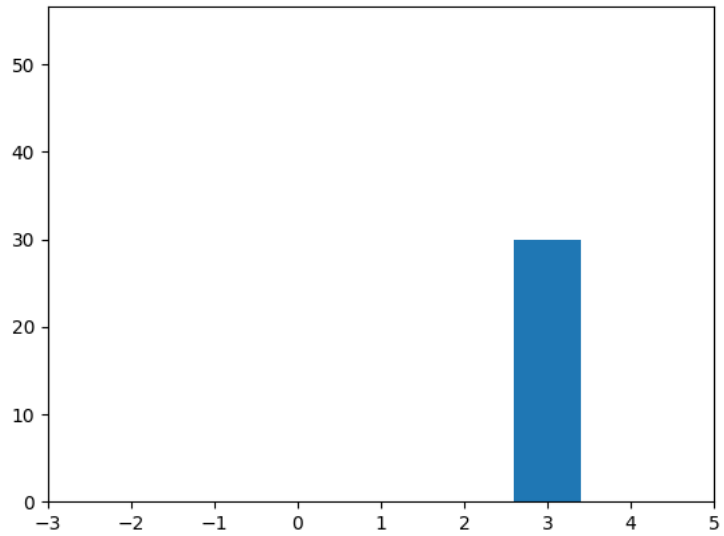
```
X=df.columns[:1]
print(X)
```

(iv) Write Python statement which counts the total data i.e. 24.

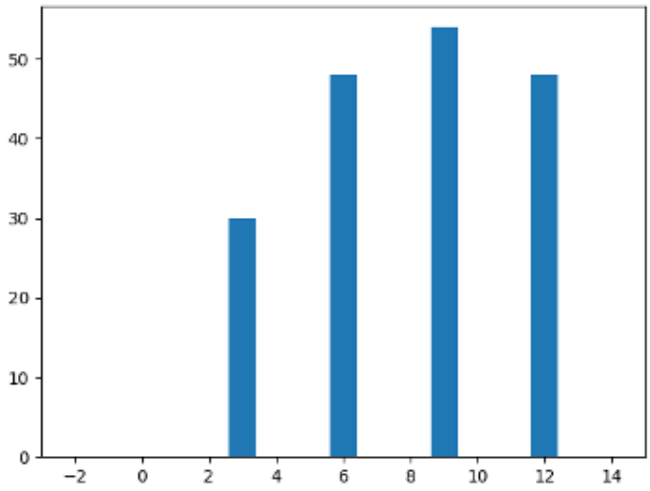
Q.36 Consider the code given below (all required libraries are imported) and the output produced by it and answer the following questions:

(i) Why is the chart showing one bar only while we are plotting four values on the chart?

```
a=[3,6,9,12]
b=[30,48,54,48]
plt.xlim(-3,5)
plt.bar(a,b)
plt.show()
```



(ii) What changes will you make to the code of previous question so that the bars are visible for all four points as shown below? But do keep in mind that the x-axis must begin from the point -3.



OR

Consider the database table salesman:

SNO	SNAME	Salary	Bonus	Date_of_Join
A01	Beena Mehta	30000	45.23	2019-10-29
A02	K. L. Sahay	50000	25.34	2018-03-13
B03	Nisha Thakkar	30000	35.00	2017-03-18
B04	Leela Yadav	80000	Null	2018-12-31
C05	Gautam Gupta	20000	Null	1989-01-23
C06	Tripti Garg	70000	12.37	1987-06-15
D07	Neena Sharma	50000	27.89	1999-03-18

Write MySQL statement for the following:

(i) Display salesman name and bonus after rounding off to zero decimal places.

(ii) Display the position of occurrence of the string “ta” in the salesman name.

(iii) Display the name of the day for the date of join of salesman.

(iv) Display the four characters from the salesman name starting from second character.