HALF YEARLY EXAMINATION, 2025-26

INFORMATICS PRACTICES

Time – 3:00 Hrs. **Class – XII** **M.M. : 70**

Date – 09.09.2025 (Tuesday)

Name of the student _____ Roll No. _____Section_____

GENERAL INSTRUCTIONS:

- All questions are compulsory.
- The examination paper contains five sections, from Section A to Section E.
- Section A consists of 21 questions (1 to 21). Each question carries 1 Mark.
- Section B consists of 7 questions (22 to 28). Each question carries 2 Marks.
- Section C consists of 4 questions (29 to 32). Each question carries 3 Marks.
- Section D consists of 2 questions (33 to 34). Each question carries 4 Marks.
- Section E consists of 3 questions (35 to 37). Each question carries 5 Marks.
- There is no overall choice. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions.
- All programming questions are to be answered using Python Language only.
- In case of MCQ, text of the correct answer should also be written.

SECTION A

Q1 Pandas Series can be created from: **[1]**

a) NumPy arrays b) Scalar values c) dictionary d) All of these

Q2 Which function is used to sort the series values using values? **[1]**

a) values_sort() b) sort_values() c) sort() d) values()

Q3 When an operation is carried out on every value of Series object is called _____. **[1]**

a) Vector Operation b) Scalar Operation

c) BothScalar Operation andVector Operation d) Plain Operation

Q4 Which of the following is not an attribute of Pandas dataframe? **[1]**

a) shape b) length c) T d) size

Q5 Which of the following functions is used to create a data frame? **[1]**

a) CreatenewFrame() b) NewFrame() c) DataFrame() d) CreateDataFrame()

Q6 Which python statement is used to find values from a DataFrame D using the index number? **[1]**

a) D.Frame b) D.iloc c) D.loc d) D.index

Q7 Which of the following function is used to load the data from the CSV file to DataFrame? **[1]**

a) readcsv() b) Read_csv() c) read.csv() d) read_csv()

Q8 The argument to be set in read_csv for reading user specified number of rows from a csv file is: **[1]**

a) nrows b) rows c) nrow d) row

Q9 The full form of CSV is **[1]**

a) Comma Separated Values b) Comma Separate Value

c) Common Separated Values d) Common SeparateValues

Q10 Write the output of the following SQL command. **[1]**

SELECT ROUND(47.89);

a) 47.8 b) 47.88 c) 50 d) 48

Q11 Which of the following function returns an integer that indicates the position of the first occurrence of the sub - string within the string? **[1]**

a) INSTR() b) LENGTH() c) RTRIM() d) TRIM()

Q12 What will be returned by the given query? **[1]**

SELECT month('2020 - 05 - 11');

a) November b) 5 c) 11 d) May

Q13 Which of the following are correct aggregate functions in SQL? **[1]**

1. AVERAGE() 2. MAX() 3. COUNT() 4. TOTAL()

a) (1) and (2) b) (1) and (4) c) (3) and (4) d) (2) and (3)

Q14 Help Ankit to write the command to display the name of the youngest student? **[1]**

a) select name,min(DOB) from student;

b) select name,maximum(DOB) from student;

c) select name,min(DOB) from student group by name;

d) select name,max(DOB) from student;

Q15 Which of the following is not a valid plotting function in pyplot? **[1]**

a) histh() b) bar() c) barh() d) hist()

Q16 To specify the style of line as dashed, which argument of plot() needs to be set? **[1]**

a) Style b) linestyle c) line d) width

Q17 How can we make bar chart horizontal? **[1]**

a) plt.rightbar() b) plt.barh() c) plt.hbar() d) plt.bar()

Q18 A histogram is used: **[1]**

a) for continuous data b) for time series data

c) for grouped data d) to compare two sets of data

Q19 To give a title to x - axis, which of the following method is used? **[1]**

a) plt.xtitle("title") b) plt.xlabel("title")

c) plt.xheader("title") d) plt.xlabel.show("title")

Q20 **Assertion (A):** import pandas as pd is used to import pandas library. **[1]**

Reason (R): It is a python library so it is to be imported for using its function.

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.

d) A is false but R is true.

Q21 **Assertion (A):** Dictionaries cannot be used to create a Series object. **[1]**

Reason (R): Dictionaries have key, value pairs and Series is a one dimensional data structure.

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.

d) A is false but R is true.

SECTION B

Q22 Write python code to write DataFrame data into "a.csv" file. Use DF as DataFrame object. **[2]**

OR

What is the use of the skiprows argument? Explain it with a suitable example.

Q23 Consider a dataframe **STOCK** created with the following information. Write single line Pandas statements for the following questions. (Assuming necessary modules have been imported.) **[2]**

	ITEMS	ID	QUANTITY
0	PEN	1001	500
1	PENCIL	1004	300
2	ERASER	1007	280

1. To display the total **QUANTITY** of all **ITEMS** in the **STOCK**
2. To display the Average **QUANTITY** of all **ITEMS** in the **STOCK**

OR

Write python code to create the above DataFrame.

Q24 Write python code to create the following series **S1** using Dictionary: **[2]**

101 Harsh

102 Arun

103 Ankur

104 Harpahul

105 Divya

106 Jeet

Q25 You have a table “Company" having columns cno, cname, department and salary. Write SQL statement to display average salary of each department. **[2]**

Q26 Consider the table Customer given below and write SQL commands: **TABLE : Customer** **[2]**

CustID	Name	Country	Emailid	Orderdate
C1001	Rajat	India	rajat@gmail.com	2022-12-22
C1002	Michael	Denmark	mic@yahoo.com	2023-11-15
C1003	Riyo	Thailand	Ri@gmail.com	2022-05-06
C1004	Jennifer	S. Korea	Jen@gmail.com	2022-08-07
C1005	Sudha	India	Sud@abc.com	2023-01-01
C1006	Vivek	Nepal	viv@xyz.com	2023-04-14

1. Display the details of all customers who have placed the order in the year 2023.
2. Display the last 9 characters of the email id of all customers of Denmark.

Q27 What is a marker? Write Python code to change the markers to diamond shape with edgecolor RED. **[2]**

Q28 Mention the purpose of the following functions briefly: **[2]**

1. show() 2. savefig()

OR

What is the use of multiple bar plot?

SECTION C

Q29 Give an example to create a DataFrame from the list of dictionary. Also, display its output. **[3]**

OR

Write the output of following code.

```
import pandas as pd
import numpy as np
data = np.array ([ 'Computer', 'SST', 'Science', 'English', 'Math', 'Hindi'] )
a=pd.Series(data)
hd=a.head(4)
print("First output")
print(hd)
t1=a.tail(3)
print("Second output")
print(t1)
```

Q30 What do you mean by CSV file? Can we use another separator other than comma? If yes then how? **[3]**

Q31 Consider a Table "PETDATA" with the following data: **Table : PETDATA** **[3]**

Id	Pname	Breed	LifeSpan	Price	Discount
101	Adi	Golden Retriever	15	16000	5
202	Candy	Boxer	11	22000	10
303	Dazzler	Bulldog	10	18000	NULL
404	Cooper	Yorkshire Terrier	16	20000	12
505	Akira	Pug	NULL	25000	8

Write SQL queries for the following:

1. Display all the pet names in uppercase.
2. Display the total price of all the pets.
3. Display the average discount available on all the pets.

OR

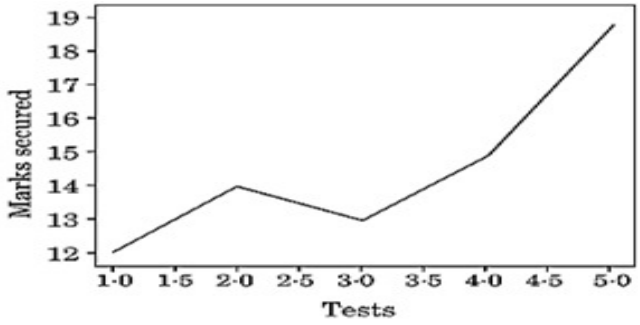
Consider the table 'FANS' and answer the following.

FAN_ID	FAN_NAME	FAN_CITY	FAN_DOB	FAN_MODE
F001	SUSHANT	MUMBAI	1998-10-02	MAIL
F002	RIYA	MUMBAI	1997-12-12	LETTER
F003	ANIKA	DELHI	2001-06-30	BLOG
F004	RUDRA	AJMER	2005-08-22	MAIL
F006	MIARA	KOLKATTA	1998-11-01	BLOG

Write MySQL queries for the following:

1. To display the details of fans in descending order of their DOB
2. To count the total number of fans of each fan mode
3. To display the dob of the youngest fan

Q32 Consider the following graph. Write the code to plot it. Also label the X and Y axis. **[3]**



SECTION D

Q33 **Read the text carefully and answer the following questions:** **[4]**

Priyanka, a student of Class XII, has been assigned a code to create a pandas Series 'ST', as shown below.

a	100
b	200
c	300
d	400
e	500
dtype:	int64

With reference to the above information, answer the given questions:

1. Choose the command that will give the following output.

b	200
c	300
dtype:	int64

2. Help her to identify the correct statement that can be used to extract the value with the index 'c'.
3. Write the command that will give the following output?

b	200
d	400
dtype:	int64

4. Write the command that will display the series by adding 10 in each value?

Q34 **Read the text carefully and answer the questions:** **[4]**

Ankit has created the following dataframe "Climate" to record the data about climatic conditions of four years.

Year	MaxTemp	MinTemp	Rainfall
2017	32	20	123
2018	33	22	140
2019	35	21	135
2020	34	23	160

1. Which code snippets will return the MaxTemp and Rainfall for year 2018 and 2019?
2. Write python code to display the temperature difference between MaxTemp and MinTemp for all the rows in the dataframe Climate.

3. Write python statement to display two rows from the top in the dataframe.
4. Write python statement to extract MinTemp for the year 2018.

OR

Read the text carefully and answer the questions:

HR department of ABC Tech has created following dataframe to store data about salaries and bonus paid to their employees:

```
import pandas as pd
import numpy as np
d1={'EName':[ 'Kavita', 'Sudha', 'Garima' ], 'Sal':[ 50000, 60000, 55000], ' Bonus':[ 3000, 4000, 5000] }
Df1=pd.DataFrame(d1)
```

Choose the Python statement using suitable functions for the following tasks.

1. Display the columns Sal and Bonus.
2. Display the details of employee Komal.
3. Display the details of the last employee.
4. Add a new column named 'Email' with the value "abc@gmail.com".

SECTION- E

Q35 **Read the text carefully and answer the questions:** **[5]**

Mansi Sethi, a car dealer has stored the details of all cars in her showroom in a table CARMARKET. The table CARMARKET has attributes CARCODE which is a primary key, CARNAME, COMPANY, COLOR, COST (in lakh) of the car and DOM which is the Date of Manufacture of the car. **Table: CARMARKET**

CARCODE	CARNAME	COMPANY	COLOR	COST	DOM
C01	BALENO	SUZUKI	BLUE	5.90	2019-08-21
C02	INDIGO	TATA	SILVER	12.00	2020-10-12
C03	GLC	MERCEDES	WHITE	62.38	2020-01-24
C04	A6	AUDI	RED	58.55	2018-12-26
C05	INNOVA	TOYOTA	BLACK	32.87	2016-11-23
C06	WAGON-R	SUZUKI	WHITE	12.11	2016-03-11
C07	BREZZA	SUZUKI	GOLDEN	9.80	2016-10-08

Write the SQL Query for the following:

1. Extract the first two characters of carname and last 4 characters of company and combine them.
2. Display the carcode and carname for all the cars which are manufactured in the year 2020.
3. Calculate the cost of the cars manufactured by the company SUZUKI.
4. Which column of the table CARMARKET is suitable to assign as a Primary Key?
5. Display the name of the month of car manufactured by SUZUKI.

OR

Read the text carefully and answer the questions :

A Gift Gallery has different stores in India. Database Administrator Abhay wants to maintain database of their Salesmen in SQL to store the data. He has decided that

Name of the database GiftGallery

Name of the table Salesman

Attributes of the table Scode - Numeric, Sname - Character 25, Address - Character 25, Dofjoin - Date, Sales - Numeric and Area - Character 10

Consider the following records in 'Salesman'table and answer the given questions. **Table : Salesman**

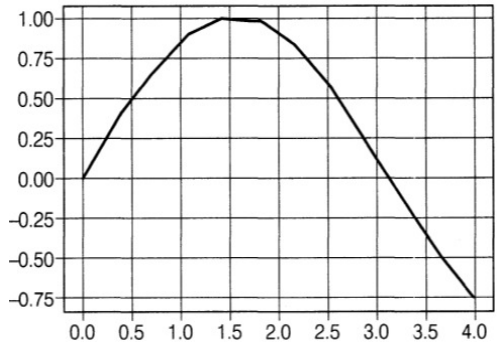
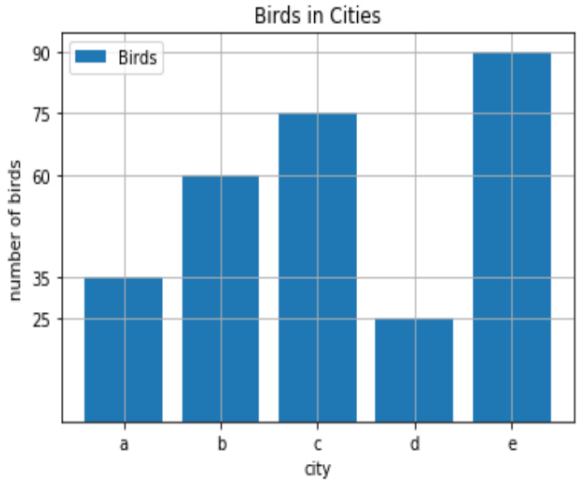
Scode	Sname	Address	Dofjoin	Sales	Area
100	Sushant	Delhi	2017/09/29	5000.90	East
101	Sushant	Gurgaon	2018/01/01	7000.75	East
102	Priya	Noida	2018/04/25	3450.45	West
103	Mohit	Delhi	2018/11/03	6000.50	North
104	Priyanshyi	Delhi	2019/12/15	8000.62	North

1. State the command that will give the output as :

Sname
Sushant
Priya

2. Write MySQL statement to display the details of all sales record of North Area.
3. Help Abhay to display sname and sales of east and west areas.
4. Write MySQL statement to display the name of the salesman along with the sales amount rounded off to one decimal point.
5. Display the total sales made by each salesman.

Q36 Write the code to display the following graph. **[5]**



Q37 Write a code to plot a bar chart to depict the birds in a city as shown below. **[5]**