

BUDHA DAL PUBLIC SCHOOL, PATIALA

TERM-II 2023

Class XII - INFORMATICS PRACTICES (065)

Times: 3 hrs

Max Marks: 70

General Instructions:

1. This question paper contains two parts A and B. Each part is compulsory.
2. Both Part A and Part B have choices.
3. Part-A has 2 sections:
 - a. Section – I is short answer questions, to be answered in one word or one line.
 - b. Section – II has two case studies questions. Each case study has 4 case-based sub-parts. An examinee is to attempt any 4 out of the 5 subparts.
4. Part - B is Descriptive Paper.
5. Part- B has three sections
 - a. Section-I is short answer questions of 2 marks each in which two questions have internal options.
 - b. Section-II is long answer questions of 3 marks each in which two questions have internal options.
 - c. Section-III is very long answer questions of 5 marks each in which one question has question has internal option.

PART-A(SECTION-I)

Attempt any 15 questions from questions 1 to 21

15X1=15

1. Which Python package is used for 2D graphics?
 - a. Matplotlib.pyplot
 - b. matplotlib.pip
 - c. matplotlib.numpy
 - d. matplotlib.plt
2. Matplotlib allows you to create: 1
 - a. table
 - b. charts
 - c. maps
 - d. infographics
3. Which of the following methods should be employed in the code to display a plot?
 - a. show()
 - b. display()
 - c. execute()
 - d. plot()
4. Which of the following is an incorrect example of savefig() function?
 - a. plt.savefig("bar1.pdf")
 - b. plt.savefig("bar1.png")
 - c. plt.savefig("bar1.eps")
 - d. plt.savefig("bar1.ppt")
5. Which of the following commands is used to install Pandas?
 - a. pip install python-pandas
 - b. pip install pandas
 - c. python install python
 - d. python install pandas
6. In a dataframe, axis-0 is for
 - a. Columns
 - b. Rows
 - c. Rows and Columns both
 - d. None of these
7. Which function is used to find most often appeared value from a set of numbers?
 - a. mean()
 - b. median()
 - c. mode()
 - d. conut()

8. Which of the following clauses is used to sort the result set?
 a. Sort By b. Group By c. Arrange By d. Order by
9. Which of the following functions is not an aggregate function?
 a. Round b. Sum() c. Count() d. Avg()
10. The term HTTP stands for?
 a. Hyper terminal tracing program b. Hypertext tracing protocol
 c. Hypertext transfer protocol d. Hypertext transfer program
11. Which one of the following is not a network topology?
 a. Star b. Ring c. Bus d. Peer to Peer

Fill in the blanks:-

12. _____ is a collection of methods with matplotlib library which allows the user to construct 2D plots easily and interactively.
13. Pyplot module's _____ lets you create histograms.
14. _____ is the most popular open-source Python library used for doing data analysis.
15. To create a series object, _____ method is used .
16. _____ function is used to create histograms in Python Pandas.
17. To specify filtering condition for groups, the _____ clause is used in MYSQL.
18. By default , the ORDER by clause sorts the result set in the _____ order.
19. The _____ function returns the total number of rows, including duplicates and NULL in a table. Count(*)
20. Group functions are also known as _____ functions.
21. In computer networking, MAC stands for _____.

PART-A (Section -II)

(2x4=8)

Both the case study based questions (22 & 23) are compulsory. Attempt any four sub parts from each question. Each sub question carries 1 mark

22. Consider the table TEACHER given below. Write commands in SQL for (i) to (iv) and Output for (v).

ID	Name	Department	Hiredate	Category	Gender	salary
1	Tanya Nanda	SocialStudies	1994-03-17	TGT	F	25000
2	Saurabh Sharma	Art	1990-02-12	PRT	M	20000
3	Nadita Arora	English	1980-05-16	PGT	F	30000
4	James Jacob	English	1989-10-16	TGT	M	25000
5	Jaspreet Kaur	Hindi	1990-08-01	PRT	F	22000
6	Disha Sehgal	Math	1980-03-17	PRT	F	21000
7	Siddharth Kapoor	Science	1994-09-02	TGT	M	27000
8	Sonali Mukherjee	Math	1980-11-17	TGT	F	24500

- (i) To display all information about teachers of PGT category. 1
- (ii) To list the names of female teachers of Hindi department. 1
- (iii) To list names, departments, and hiring dates of all the teachers in ascending order of hiring dates. 1
- (iv) To count the number of teachers in English department.

SELECT MAX(Hiredate) FROM Teacher;

1

Or

Consider the Table SHOPPE given below. Write command in MySQL for (i) to (iv) and output for (v) .

Code	Item	Company	Qty	City	Price
102	Biscuit	Hide & Seek	100	Delhi	10.00
103	Jam	Kissan	110	Kolkata	25.00
101	Coffee	Nestle	200	Kolkata	55.00
106	Sauce	Maggi	56	Mumbai	55.00
107	Cake	Britannia	72	Delhi	10.00
104	Maggi	Nestle	150	Mumbai	10.00
105	Chocolate	Cadbury	170	Delhi	25.00

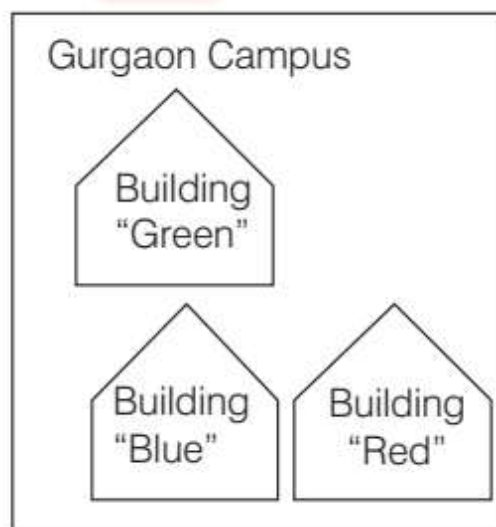
- (i) To display names of the items whose name starts with 'C' in ascending order of Price.
- (ii) To display code, Item name and City of the products whose quantity is less than 100.
- (iii) To count distinct Company from the table.
- (iv) To insert a new row in the table Shoppe
'110','Pizza','Papa Jones',120,"Kolkata",50.0

or

Select Count(distinct(City)) from Shoppe;

23. We at Work consultants are setting up a secured network for their office campus at Gurgaon for their day-to-day office and web-based activities. They are planning to have connectivity between 3 buildings and the head office situated in Mumbai. Answer the questions (i) to (v) after going through the building positions in the campus and other details, which are given below:

Head office
"Mumbai"
on a
seabeach



Distance between various buildings

Building "GREEN" to Building "RED"	110 m
Building "GREEN" to Building "BLUE"	45 m
Building "BLUE" to Building "RED"	65 m
Building "CAMPUS" to "HEAD OFFICE"	1760 km

Number of computers

Building "GREEN"	32
Building "RED"	150
Building "BLUE"	45
HEAD OFFICE	10

Answer the following questions:-

- (i) Suggest the most suitable place (i.e. building) to house the server of this organization. Also, give a reason to justify your suggested location.
- (ii) Suggest a network device needed to connect GREEN and RED building by UTP cable.
- (iii) Suggest the device to connect all computer in each building.
 - (a) Switch
 - (b) Repeater
 - (c) Router
- (iv) Suggest the most appropriate media to connect Head Office to new office which is planning to setup inside Arabian Sea where it is not possible to lay cables.

or

Write the short note on the following:

- (i) Web server
- (ii) Purpose of cookies
- (iii) Mesh topology

Part - B (Section -I)

Short Answer Type Questions:-

10x2=20

24. What is Python matplotlib?
25. What are the various types of plots offered by matplotlib?
26. Name the functions you will use to create a (i) Line chart (ii) Bar chart
27. What is a histogram ? How is it useful?
28. How are bar charts represented using matplotlib?
29. What is dataframe?
30. Write the output of the following data frame program:-

```
import pandas as pd
data = [['Alex',10],['Bob',12],['Clarke',13]]
df = pd.DataFrame(data,columns=['Name','Age'])
print (df)
```
31. Explain phishing?
32. Write two advantages and disadvantages of networks.

33. What is MAC address?

Part - B (Section -II)

4x3=12

34. What do you understand by 'Privacy of data'?

35. . Write any three points of network security components.

36. What are aggregate functions?

37. What is data visualization? What is its significance?

or

Mr. Pawan wants to plot a bar graph for the given set of values of subject x-axis and number of students who opted for that subject on y-axis. Complete the code to perform the

following:

- (i) To plot the bar graph in statement 1
- (ii) To display the graph in statement 2

```
Import matplotlib.pyplot as plt
```

```
x=['Hindi','English','Sciecne', 'SST']
```

```
y=[10,20,30,40]
```

Section -III

5x3=15

Answer the following questions in detail :-

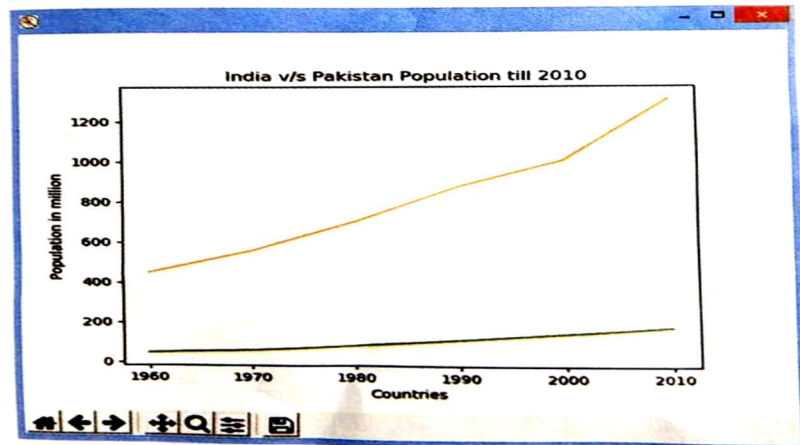
38. Plot a line chart to depict a comparison of population between India and Pakistan.

Sample data

```
Year=[1960,1970,1980,1990,2000,2010]
```

```
pop_pak=[44.91,58.9,78.19,107.7,138.5,170.6]
```

```
pop_ind=[449.48,553.57,696.783,870.133,1000.4,1309.1]
```

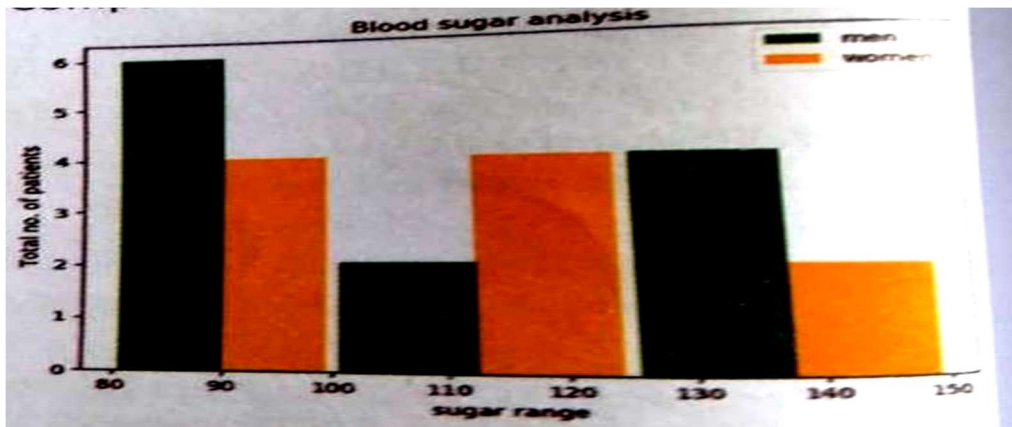


39. Given below are the sugar level for men and women in a city . Compare the sugar levels amongst them through a histogram

Sample Data

```
Men:[113,85,90,150,149,88,93,115,135,80,77,82,129]
```

```
Women:[67,98,89,120,133,150,84,69,89,79,120,112,100]
```



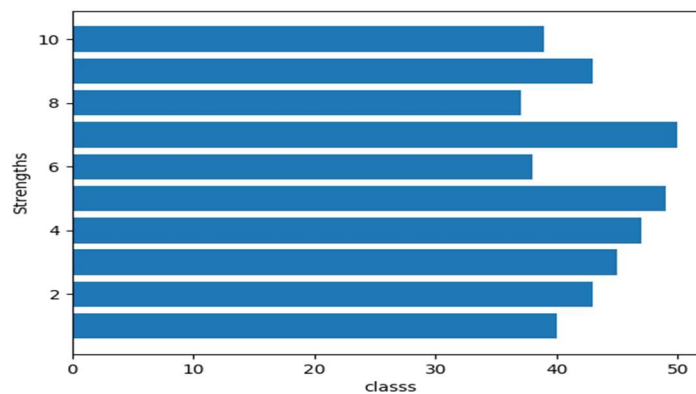
Or

Write a Python program to display a horizontal bar chart of the number of students in a class.

Sample data :

Class=(1,2,3,4,5,6,7,8,9,10)

Strengths =(40,43,45,47,49,38,50,37,43,39)



40. Write a python program to plot two or more lines with legends.

Sample data

First line

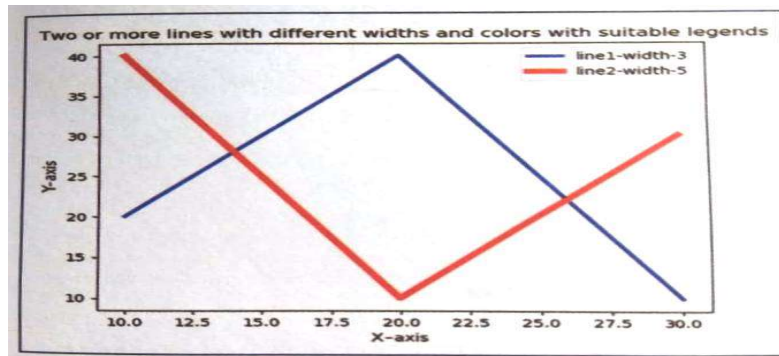
X1=[10,20,30]

Y1=[20,40,10]

Second Line

X2=[10,20,30]

Y2=[20,40,10]



Or

Write a python code to create a dataframe with appropriate headings from the list given below:

['S101','Amy',70], ['S102','Bandhi',69], ['S104','Cathy',75], ['S105','Gundaho',82]

1. Write a dataframe program to get following output :-

output

#df1 output

	a	b
first	1	2
second	5	10

#df2 output

	a	b1
first	1	NaN
second	5	NaN