XII – IP – PT 7 (KEY) (35 MARKS)

General Instructions:

The Question paper is divided into 5 sections – A, B, C, D and E.

- Section A, consists of 9 questions (1 – 9). Each question carries 1 marks.
- Section B, consists of 4 questions (10 – 13). Each question carries 2 marks.
- Section C, consists of 3 questions (14 – 16). Each question carries 3 marks.
- Section D, consists of 1 question (17). It carries 4 marks.
- Section E, consists of 1 question (18). It carries 5 marks.

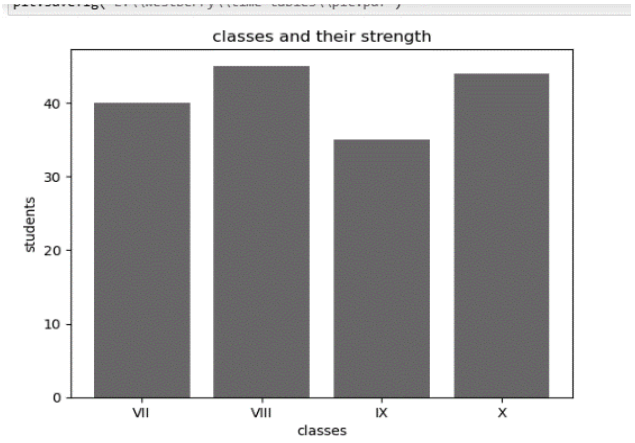
Internal choices have been given for question numbers – 11, 15 and 17

SECTION – A

Each question carries 1 mark

1	To iterate over horizontal subsets of dataframe, _____ function may be used. a. iterate() b. iterrows() c. itercols() d. iteritems() **A. b**	1
2	The datapoints plotted on a graph are called _____ a. points b. pointers c. marks d. markers **A. d**	1
3	Which function is used to show legends? a. display() b. show() c. legend() d. legends() **A. c**	1
4	Which argument in hist() is used to create a stacked bar type histogram? a. histt b. histtype c. type d. barstacked **A. b**	1
5	**Assertion (A) :** Data visualization refers to the graphical representation of information and data using visual elements like charts, graphs and maps etc. **Reason (R) :** To install matplotlib library we can use the command pip install matplotlib. 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	1

	A. b	
6	Which of the following is an advantage of open source software? a. You can edit the source code to customise it. b. You need to be an expert to edit code. c. You have to pay d. Can sometimes be two generic for specialist purposes. **A. a**	1
7	A research student is expected to write a thesis on a topic. The student browses internet for 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 categorises the act of the writer? a. Spamming b. Phishing c. Plagiarism d. Trojan **A. c**	1
8	A mail or message sent to a large number of people indiscriminately without their consent is called _____ a. Bulk sms/mails b. Spam c. Trash d. All the above **A. b**	1
9	The default position of legend is a. Upper center b. Upper right c. Upper left d. Lower right **A. b**	1
	SECTION – B **Each question carries 2 marks**	
10	What will be the output of the following code? import pandas as pd import numpy as np data = np.array(['a1','b1','c1','d1','e1','f1']) s = pd.Series(data) print(s) print("I.") print(s[1:3]) print("II.") print(s[3:5]) **Output:** 0 a1 1 b1 2 c1 3 d1 4 e1	2

	5 f1 dtype: object I. 1 b1 2 c1 dtype: object II. 3 d1 4 e1 dtype: object	
11	I. Write the program to the following bar graph representing the number of students in each class.  **Ans:** **import matplotlib.pyplot as plt** **classes = ['VII', 'VIII', 'IX', 'X']** **student = [40, 45, 35, 44]** **plt.bar(classes, student)** **plt.xlabel("classes")** **plt.ylabel("students")** **plt.title("classes and their strength")** **plt.show()** **Or** II. Write names of any four common types of intellectual property rights which are protected by the Law. **A. Copyright, infringement, patent, trademark.**	2
12	Sumit got good marks in all the subjects. His father gifted him a laptop. He would like to make Sumit aware of health hazards associated with inappropriate and excessive use of laptop. Help his father to list the points which he should discuss with Summit. **A. Excessive digital usage may lead to** **Impact on bones and joints** **Eye strain** **Sleep issues** **Mental health issues** **Internet addiction disorder**	2
13	Consider two objects x and y. x is a list whereas y is a series. Both have values 20, 40, 90, 110.	2

	What will be the output of the following two statements considering that the above objects have been created already? a. Print(x*2) **A. [20, 40, 90, 110, 20, 40, 90, 110]** b. Print(Y*2) **A. 0 40** **1 80** **2 180** **3 220**	

SECTION – C **Each question carries 3 marks**		
14	a. What is scatter chart? **The scatter chart is a graph of plotted points that show the relationship between two sets of data. With a scatter plot, a maker or marker represents a single data point. With one mark for every data point a visual distribution of the data can be see.** b. How scatter chart is different from line chart? **The difference is that with a scatter plot, the decision is made from the data points such that the individual points should not be connected directly together with a line but instead express a trend.** c. What is histogram? How is it useful? **A histogram is a statistical tool used to summarise discrete or continuous data. It provides a visual interpretation of numerical data by showing the number of data points that fall within a specified range of values called bins**.	3
15	I. Explain what the following statements are doing? df is the name of a DataFrame. a. df.iloc[:5,] **It will display first 5 rows of DataFrame df.** b. df.iloc[1:5,] **it will display second (which has index as 1) to fifth row of DataFrame df.** c. df.iloc[5,0] **it will display sixth row's 1st column value of DataFrame df.** d. df.iloc[1:5,0] **it will display second to fifth rows first column's values of DataFrame df.** e. df.iloc[1:5,:5] **it will display second to fifth rows, first 5 columns values of DataFrame df.** f. df.iloc[2:7,1:3] **it will display third to seventh rows, 2nd and 3rd columns values of DataFrame df.** **Or** II. Explain about the following topics.	3

a. Proprietary software

Proprietary software is the software that is neither open nor freely available. its use is regulated and further distribution and modification is either forbidden or requires special permission by the supplier or vendor. Source code of proprietary software is normally not available.

b. copylefted software

Copylefted software is free software whose distribution terms ensure that ll copies of all versions carry more or less the same distribution terms. this means for instance, that copyleft licenses generally disallow others to add additional requirements to the software and require making source code available.

c. OSS

OSS refers to open source software, which refers to software whose source codes is available to customers and it can be modified and redistributed without any limitation. an oss may come free of cost or with a payment of nominal charges that its developers may charge in the name of development, support of software.

16 — 3

a. Write a program that reads from a CSV file. Read only first 5 rows in your dataframe.
b. Give column headings as ItemName, Quantity, Price.
c. Make sure to read first row as data and not as column headers.

Answer

```
Import pandas as pd
df = pd.read_csv("c:\\data\\data.csv",names=["itemName", "Quantity","price"],
header = none, nrows = 5)
Print(df)
```

SECTION – D

Each question carries 4 marks

17 — 4

I. Internet security is a major issue for many people. The following is a list of typical security issues. For each one, describe the security issue and suggest a way of protecting against it.

a. pharming
b. phishing
c. spyware
d. viruses

Security issues	Description of security issue	Method of protection
Pharming	**It is actually a code installed on the hard drive of a user's computer or on actual web server; code redirects user to a bogus/ fake website without user knowing.**	**Use filters to authenticate websites. User should be alert and look for pharming clues which indicate being directed to a bogus site.**
Phishing	**In phishing, creator sends legitimate – looking (fake) email in**	**ISPs can filter/ block out phishing emails.**

	the hope of gaining personal/ financial information; fake email replicates a well known company ex. a bank	**User should be aware of opening links in emails.**
Spyware	**It is a type of software that gathers information by monitoring key presses on a user's keyboard or activity and relays the information back to person who sent the spyware.**	**Use dropdown boxes. User should be alert and look for clues when using their computer.**
viruses	**It refers to program or coding the replicates itself/ corrupts the system/ alters to deletes data.**	**Use anti-virus software. Do not use disks/ software from unknown sources. Do not open emails from unknown senders.**

Or

II. Write the differences between the following

a. Copyright and patent

A copyright is a collection of rights automatically vested to someone who has created an original work. the copyright owner has the authority to keep or to transfer the rights to use/ distribute, individually to one or more people, or to transfer them collectively to one or more people.

A patent is a grant of exclusive right to the inventor by the government. Patents give the holder a right to exclude others from making, selling, using or importing a particular product or service, in exchange for full public disclosure of their invention.

b. Plagiarism and copyright infringement

Plagiarism is stealing someone else's intellectual work and representing it as your own work without citing the source of information.

Copyright infringement is the use of production of copyright-protected material without the permission of the copyright holder.

c. Non-ethical hacking and ethical hacking

Ethical hacking is done on behalf of a company, which wants to find out the loopholes in the system in context to security. Unethical hacking on the other hand is done in order to harm or cause loss to an individual or a company.

d. Active and passive footprints.

An active digital footprint includes data that you intentionally submit online, ex. sending an email, sending messages online, posting a social media post, replying to post or commenting online etc.

A passive digital footprint gets created through your data trial that you unintentionally leave online. for example, when you visit a website, the web server may log your IP address, which identifies your internet service provider and your approximate location.

SECTION – E

Each question carries 5 marks		
18	I. Plot the following data on a line chart and customize chart according to below given instructions. 	Month	Jan	Feb	Mar	Apr	May
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Sales	500	300	455	550	600 | a. Write a title for the chart “The Monthly Sales Report” b. Write the appropriate titles of both the axes. c. Write code to display legends. d. Display red color for the line. e. Use the line style dashdot. f. Display ‘>’ markers on data points. **Answer** **import matplotlib.pyplot as pp** **month = ["jan", "feb", "mar", "ap", "may"]** **rales = [500, 300, 455, 550, 600]** **pp.plot(month,rales,label = 'rales', color = "red", linestyle = 'dashdot', marker = '>')** **pp.legend()** **pp.show()** II. Consider the below table. Write a program to plot a bar chart from the medals won by Australia. In the same chart, plot medals won by India too. | Country	Gold	Silver	Bronze	Total
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Australia	80	59	59	198
India	26	20	20	66
England	45	45	46	136	 **Answer:** **import matplotlib.pyplot as plt** **info = ['gold','silver','bronze','total']** **India = [26,20,20,66]** **Australia = [80,59,59,198]** **plt.bar(info,Australia)** **plt.bar(info,India)** **plt.xlabel("Medal type")** **plt.ylabel("India medal count")** **plt.show()**	5