SAMPLE PAPER 4

INFORMATICS PRACTICES

A Highly Simulated Practice Questions Paper
*for CBSE **Class XII** (Term I) Examination*

Instructions

1. This question paper is divided into three sections.
*2. **Section - A** contains 25 questions (1-25). Attempt **any 20** questions.*
*3. **Section - B** contains 24 questions (26-49). Attempt **any 20** questions.*
*4. **Section - C** contains 6 case study based questions (50-55). Attempt **any 5** questions.*
5. Each question carries 0.77 mark.
*6. There is **no** negative marking.*

Roll No. | | | | | | | |

Maximum Marks : 35
Time allowed : 90 min

Section A

This section consists of 25 questions (1 to 25). Attempt any 20 questions from this section. Choose the best possible option.

1. The program that installs modules like pandas and matplotlib in Python is
(a) pinstall (b) pip
(c) pyinstall (d) python-install

2. Python programs are saved with an extension of
(a) .pyprog (b) .prog
(c) .py (d) .ppt

3. The labels associated with the values of a series are called
(a) Data value (b) index
(c) Left index (d) parameter

4. Dataframe column indexes usually start with
(a) 1 (b) 'a' (c) 'i' (d) 0

5. How many elements will be there in the Series?

```
import pandas as pd
Myseries=pd.Series(range(1,20,2))
```

(a) 11 (b) 9
(c) 10 (d) 12

6. The matplotlib.pyplot module does not carry which of the following function?
(a) scatter() (b) hist()
(c) head() (d) plot()

7. To create an empty series object, you can use
(a)
```
import pandas as pd
s=pd.Series(empty)
```
(b)
```
import pandas as pd
s=pd.Series()
```
(c) `s=pd.Empty` (d) None of these

8. The data type of an empty series is
(a) int64 (b) String
(c) float64 (d) Boolean

9. Given a series "s" carrying the values [12,45,67,98,30] , the statement to extract the last two elements is
(a) s.end(2) (b) s[–2]
(c) s(2) (d) s.tail(2)

10. The …… function resets the index that has been changed using set_index().
(a) reset() (b) resetindex()
(c) change_index() (d) reset_index()

11. Which of the following is not a demerit of internet technology?
(a) Health hazards (b) Data theft
(c) Access of immense information (d) Cyber crimes

12. Linux, Apache and OpenOffice belong to which category of softwares?
(a) Open source softwares (b) Proprietary softwares
(c) Shareware softwares (d) Freeware softwares

13. Which of the following is not a cyber crime?
(a) Sending offensive mails
(b) Posting rumours in social networks
(c) Trying to guess password of others
(d) All of the above

14. Which of the following function is used to return each index value along with a series containing the data in each row?
(a) iterrows() (b) iteritems() (c) itertuples() (d) All of these

15. Sohini wants to keep herself protected from malwares and cyber crimes . Which among the following she should do?
(a) Not sharing of her E-mail id with unknown people
(b) Not visiting suspicious sites
(c) Look for https:// in the URL
(d) All of the above

16. A spyware is
(a) a malware that steals and performs spying of data in systems illegally
(b) a software that protects network users from viruses
(c) a gaming software
(d) a malware that duplicate files on system

17. The pop() function when used with a series requires ..... parameter(s).
(a) 1 (b) 2 (c) 0 (d) 3

18. A program designed to protect web sites from bots by generating random tests that humans can pass but computer programs cannot.
(a) Firewall (b) Captcha (c) Randomization (d) None of these

19. The index of a series can be
(a) integer (b) float
(c) string (d) All of these

20. The digital trails we keep unintentionally are called .....
(a) active digital footprints (b) external footprints
(c) personal footprints (d) passive digital footprints

21. Trolling is not meant for
(a) provoking others on the web (b) upsetting someone
(c) stealing data (d) None of these

22. Which one of the following is not an instance of cyber stalking?
(a) Vandalism (b) Threats
(c) Identity theft (d) None of these

23. The statement S1=pd.Series([14,7],index=['a','b','c']) will
(a) create the series properly
(b) produce an error
(c) create the series with one value NaN
(d) create the series with one value 0

24. The property of a series that checks whether it has NaN or not.
(a) Nans (b) isNan
(c) hasnans (d) There is no such property

25. Which of the following is true about a dataframe creation?
(a) It can be created from lists (b) It can be created from dictionaries
(c) It can be created from series (d) All are true

Section B

This section consists of 24 questions (26 to 49). Attempt any 20 questions.

26. Given a Series created as :

```
s=pd.Series(range(1,9,3),index=['a','b','c'])
```

What will be the output of the print statement?

```
s=s*3
if s[a]>5:
    s[a]=s[a]*2
print(s)
```

(a) a 3
b 24
c 42

(b) a 3
b 24

(c) a 3

(d) None of these

27. Given a series "films" created as:

```
import pandas
films=_________([12,55,88,99],index=['a','b','c','d'])
```

What should be filled in the blank to create the series properly?

(a) p.Series (b) pd.Series

(c) Series(films) (d) pandas.Series

28. Paromita wanted to create a series "rseries" whose data would be a list "lst" and indexes would be the values 1,3,5,7,9, what statement is to be written for this? (Assuming pandas is imported as p)

(a) `rseries=p.Series(lst,index=range(1,10,3))`

(b) `rseries=p.Series(lst,index=range(1,10))`

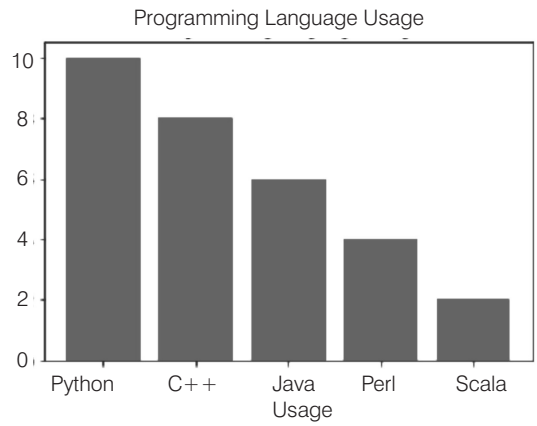
(c) `rseries=p.Series(lst,index=range(1,10,2))`

(d) `rseries=p.Series(lst,index=[1,3,5,7])`

29. Smriti had just finished writing her e-Book on Science fiction. To her surprise she found exactly the same contents were released by another author before her. This is a case of

(a) spamming (b) phishing (c) plagiarism (d) stalking

30. Given the following plot , the code to show the top heading "Programming Language Usage" will be :



(a)
```
import matplotlib.pyplot as p
p.title("Programming Language Usage")
```

(b)
```
import matplotlib.pyplot as p
p.show("Programming Language Usage")
```

(c)
```
import matplotlib.pyplot as p
p.heading("Programming Language Usage")
```

(d) None of the above

31. **Statement A** To plot a line chart the plot() function is used.

Statement B The color of the line in a line chart can be changed by the ''vision'' property.

(a) Statement A is correct, but B is incorrect.

(b) Statement A is incorrect, B is correct.

(c) Both statements are correct.

(d) Both statements are incorrect.

32. The role of the savefig() function is
(a) to save a dataframe (b) to save a series
(c) to save a list (d) to save a chart

33. Debarati has a set of exhausted batteries , what is the proper treatment of those?
(a) Throw them into water
(b) Dispose them in the soil
(c) Dispose them to a proper e-Waste collector
(d) Give them to a child for play

34. Given statements regarding FOSS
Statement A They cannot be modified.
Statement B Their source code is available.
Statement C They are free.
Statement D They must have a price associated.
Which of the following statements correctly characterise FOSS?
(a) Statements A and B (b) Statements B and C
(c) Statements C and D (d) Statements B and D

35. Given the following code to create a series:
```
import pandas as pd
S1 = pd.Series(data = (31, 2, –6), index = [7, 9, 3, 2])
```
The result of the statement , on execution will be
(a) series will be created properly (b) ValueError
(c) NameError (d) IndexError

36. Which of the following crimes are not under jurisdiction of ITA-2000?
(a) Unable to maintain records
(b) Posting obscene material
(c) Child pornography
(d) All are under jurisdiction of ITA -2000

37. Which of the following is an example of boolean indexing?
(a)
```
d1={'roll':[10,11,12],'name':['Ram','Rahim','Sita']}
df1=p.DataFrame(d1,index=[True,False,True])
```
(b)
```
d1={'roll':[10,11,12],'name':['Ram','Rahim','Sita']}
df1=p.DataFrame(d1,index=[false,true,true])
```
(c)
```
d1={'roll':[10,11,12],'name':['Ram','Rahim','Sita']}
df1=p.DataFrame(d1,index=[1,2,3])
```
(d) None of the above

38. The term DOS attacks in networks refers to
(a) Digital Online Services (b) Digital Online Server
(c) Denial of Services (d) None of these

39. The number of columns in the dataframe created by the following code is
```
import pandas as pd
DFT = [{'a':10, 'b':20}, {'a':5, 'b':10, 'c':20}]
D1 = pd.DataFrame(DFT)
```
(a) 2 (b) 1 (c) 4 (d) 3

40. A series is created as :

```
Poetseries = pd.Series(['Kavi','Shyam','Ravi'], index=[3,5,1])
print(Poetseries >= 'S')
```

(a) 3 False
(b) 3 False
1 False
(c) 5 True
1 False
(d) 3 False
5 True
1 False

41. CFC stands for

(a) Clean Fluorescent Carbon
(b) Chloro Fluoro Carbon
(c) Common Food Categories
(d) None of these

42. Given a dataframe "Paint" carrying the following data of paints:

Index	Pno	Pname	Cost
0	123	Royale	1700
1	234	Berger	1250
2	345	Deluxe	500

The statement to display the rows where Cost >1000 is

(a) `Paint[Paint['Cost']>20]`
(b) `Paint[Paint[Cost]>20]`
(c) `Paint[Paint.'Cost'>20]`
(d) `Paint[Paint['Cost'] greater than 20]`

43. Given a dataframe "Empdf" storing the following :

	EmpId	Ename	Aadhar
0	P/01	John	34568899
1	P/02	Smith	99887755
2	P/03	Rohit	77665433

The statement to remove, the Aadhar column from the dataframe is

(a) `del Empdf['Ename']`
(b) `del Emp[4]`
(c) `del Empdf['Aadhar']`
(d) None of these

44. Given two series :

```
S1 = pd.Series([1, 2, 3, 4], index = ['a', 'b','c','d'])
S2 = pd.Series([11, 22, 33, 44], index = ['a', 'bb','c','dd'])
```

If a dataframe is created as

```
D1 = pd.DataFrame([S1,S2])
print(D1)
```

Find the output.

(a)

	a	b	c	d	bb
0	1.0	2.0	3.0	4.0	NaN
1	11.0	NaN	33.0	NaN	22.0

(b)

	a	b	c	d	dd
0	1.0	2.0	3.0	4.0	NaN
1	11.0	NaN	33.0	NaN	44.0

(c)

	a	b	c	d	bb	dd
0	1.0	2.0	3.0	4.0	NaN	NaN
1	11.0	NaN	33.0	NaN	22.0	44.0

(d) None of the above

45. A dataframe Studdf is as follows :

	SName	AISSE	AISSCE
0	Shreya	20	30
1	Rakhi	23	50
2	Priya	45	90

To set the dataframe to 100 for all elements, the correct statement is

(a) Studdf[: :]=100 (b) Studdf[:]=100 (c) Studdf[ ]=100 (d) Both (a) and (b)

46. Mr. Satya Narayan created a dataframe "Friends" storing the names and addresses of his 3 Friends as follows :

	Friends	
	Name	Address
0	Monti	Ranaghat , WB
1	Kakoli	Kalyani
2	Tapan	Kolkata

Now, he wants to change the address list to ['Ranaghat,WB','New Jersey','Melbourne']. The statement that he has to write is

(a) `Friends['Address']= ['Ranaghat,WB','New Jersey','Melbourne']`

(b) `Friends[]= ['Ranaghat,WB','New Jersey','Melbourne']`

(c) `Friends[1]= Friends['Address']= ['Ranaghat,WB','New Jersey','Melbourne']`

(d) All of the above

47. Which of the following is characterised by attempting to fraudulently acquire sensitive information by masquerading?

(a) Plagiarism (b) Phishing (c) Bullying (d) License

48. Given a dataframe Doctor:

Index	Dno	Dname	Dept
0	123	R.Rai	Eye
1	124	P. Roy	Ortho
2	125	D.Sen	ENT

The command to remove the columns Dname,Dept will be

(a) `Doctor =Doctor.drop['Dname','Dept',axis=1]`

(b) `Doctor =Doctor.drop['Dname','Dept']`

(c) `Doctor =Doctor.drop(['Dname','Dept'],axis=1)`

(d) Both (a) and (b)

49. A series Teacher is created as follows :

0	T
1	E
2	A
3	C
4	H
5	E
6	R

The command to display the last element of the series is

Statement A print(Teacher.tail(1))

Statement B print(Teacher.loc[6:])

(a) Both statements are correct.

(b) Both statements are incorrect.

(c) Statement A is correct, Statement B is incorrect.

(d) Statement A is incorrect, Statement B is correct.

Section C

(Case Study Based Questions)

This section consists of 6 questions (50 to 55). Attempt any 5 questions.

Mr. Rakesh Malhotra wants to create a bar chart showing the sales of his company in 4 Quarters of year 2010. The data of sales is given as follows :

Quarter1 :200 , Quarter 2: 150, Quarter 3 : 300, Quarter 4 : 900

He imported the required module as follows :

```
import matplotlib as plt   #L1
```

He created a list storing data of all the quarters

```
yr2010=[200,150,300,900]
```

Help him in plotting the data properly.

50. The correct statement in L1 would be

(a) import matplotlib.bar as plt

(b) import matplotlib.plot as plt

(c) import matplotlib.pyplot as plt

(d) No error

51. The statement to plot the bar chart is

(a) `Plt.bar(['Apr-Jun','July-Sep','Oct-Dec','Jan-Mar'],yr2010)`

(b) `plt.barchart(['Apr-Jun','July-Sep','Oct-Dec','Jan-Mar'],yr2010)`

(c) `plt.bar(['Apr-Jun','July-Sep','Oct-Dec','Jan-Mar'],yr2010)`

(d) None of the above

52. To give the color of the bars as 'Red' the parameter to the bar() function will be

(a) frontcolor='r' (b) edgecolor='r'

(c) barcolor='r' (d) color='r'

53. To make the bar chart horizontal, the bar() function is to be replaced by

(a) bargraph() (b) horizontalbar()

(c) barh() (d) None of these

54. Even after plotting the bar chart he is unable to view it. What command has to be written for displaying the chart?

(a) `Plt.display()` (b) `plt.display()`

(c) `plt.show()` (d) `barplot.show()`

55. The statement to be added to add a x-axis title "Quarters" is

(a) `plt.xtitle("Quarters")` (b) `xtitle="Quarters"`

(c) `plt.x_title="Quarters"` (d) `plt.xlabel("Quarters")`

Answers

1. (b)	**2.** (c)	**3.** (b)	**4.** (d)	**5.** (c)	**6.** (c)	**7.** (b)	**8.** (c)	**9.** (d)	**10.** (d)
11. (c)	**12.** (a)	**13.** (d)	**14.** (a)	**15.** (d)	**16.** (a)	**17.** (a)	**18.** (b)	**19.** (d)	**20.** (d)
21. (c)	**22.** (d)	**23.** (b)	**24.** (c)	**25.** (d)	**26.** (a)	**27.** (d)	**28.** (c)	**29.** (c)	**30.** (a)
31. (a)	**32.** (d)	**33.** (c)	**34.** (b)	**35.** (b)	**36.** (d)	**37.** (a)	**38.** (c)	**39.** (d)	**40.** (d)
41. (b)	**42.** (a)	**43.** (c)	**44.** (c)	**45.** (d)	**46.** (a)	**47.** (b)	**48.** (c)	**49.** (a)	**50.** (c)
51. (c)	**52.** (d)	**53.** (c)	**54.** (c)	**55.** (d)					

SOLUTIONS

1. The pip under the scripts folder downloads and installs additional modules as pandas and matplotlib in Python.

2. Python programs are saved with an extension of .py.

3. A series carries two elements the index and the value and the labels associated with the values of a series are called index.

4. A dataframe created using the DataFrame() function has both the row and column indexes starting from 0.

5. The range(1,20,2) returns values starting from 1 to 19 incrementing by 2.Hence, values 1,3,5,7,9,11,13,15,17,19= 10 values.

6. All the other functions are used to plot specific types of chart and belong to the matplotlib.pyplot module, whereas the head() function is used to extract top(n) values from a series or dataframe does not belong to matplotlib.pyplot module.

7. The Series() function with a blank parameter list creates an empty series.

The syntax that is used for creating an empty series

```
<series_object > = pandas.Series()
```

8. The following code shows the data type of an empty series

```
import panda as pd
s1=pd.Series()
print(s1)
```

Output Series([], dtype: float64)

9. The tail() function extracts elements from end of a series.

10. The reset_index() function can be used to reset the index of a dataframe.

11. The internet is huge network of thousands of user computers storing immense amount of information which is a big advantage for the internet users , so it cannot be a demerit.

12. Open source softwares are the softwares hose source code is available for modification.

e.g. Linux, Apache, OpenOffice etc.

13. Cyber crimes are the acts that use the network and electronic means to make some or other types of harms to people attached to the network. Offensive mail , posting rumours and password guessing are all harmful for netizens.

14. iterrows () function is used to return each index value along with a series containing the data in each row.

15. https:// is a symbol of secured sites , not visiting suspicious sites also keep a user safe , similarly not sharing the E-mail id with unknown people protects from spamming.

16. A spyware is a malware that attacks systems to spy on the user activities and to steal confidential data and give it to people who are ready to pay for it.

17. The pop() function when used with a series requires 1 parameter.

Syntax `<series>.pop(index)`

18. A captcha is an alphanumeric text randomly generated by web sites that is to be filled by users, before login as an authentication measure. It protects web sites from bots and other programs trying for illegal access.

19. Series object can be created with string, float, boolean and integer indexes.

20. A digital footprint that we keep unknowingly or unintentionally is called passive digital footprint.

21. Trolling is the act of leaving intentionally provocative or offensive messages on the internet in order to get attention, cause trouble or upset someone.

22. Cyber stalking is the use of the internet or other electronic means to stalk or harass an individual, group or organization. It may

include false accusations, defamation, slander and libel. It may also include monitoring, identity theft, threats, vandalism, solicitation for sex, doxing or blackmail.

23. Since number of values is less than number of indexes, it will produce an error.

24. The hasnans property checks whether a series has NaN values or not and returns True or False.

25. A dataframe can be created from dictionaries,series and lists.

26. The code creates the series with values [1,4,7]. These are multiplied with 3 to change the series to [3,12,21] . The if checks for values that are greater than 5 and changes them to double values. Hence, 21 is change to 42.

27. Since pandas is imported without any alias, so the Series() function is to be called as pandas.Series.

28. The data of the series comes from lst and the index is given by the range function . range(1,10,2) gives values 1 to 9 incrementing by 2.

29. This is a case of plagiarism. The act of stealing creations made from the innovative minds of others like books, software, etc., and publishing them in one's own name is called plagiarism.

30. The title () function can be used to display the title of a chart.

31. The plot() function plots a line chart but the property to change the line color is ''color''.

32. The savefig("filename.jpg") saves a plot/chart to the disk .

33. Throwing them to water or soil will pollute them . Even it can be harmful for a child to play with it. So disposing them to a proper e-Waste collector would be the best action.

34. Free and open source softwares have the source code is available and they are free.

35. Since values are 3 and indexes are 4 a value error will occur.

36. The ITA -2000 has sections that handle all the given kinds of crimes.

37. Boolean indexing means the indexes have to be Boolean values True or False.

38. DOS or Denial of Services attacks are the attacks that prevent the legitimate user to access the resources and services from the system.

39. Since there are 3 keys of the second dictionary , the number of columns will be 3.

40. The elements at indexes 3 , 1 are 'Kavi' and 'Ravi' which are less than 'S' hence a False is returned for them .

41. Chloro Fluoro Carbon (CFC) are components of electronic waste materials and are toxic , harmful for health.

42. The condition to display the rows can be indexed into the dataframe name to get the matching rows.

43. The del function along with the column can remove the column from the dataframe.

44. When a dataframe is created from two series the records are formed by combining the values where the indexes are same. For non matching indexes a NaN value is returned.

45. Both options (a) and (b) will set the dataframe values to 100.

46. While writing values for a column of a dataframe , if the column exists the values are updated , else the column is added.

47. Phishing is characterised by attempting to fraudulently acquire sensitive information such as passwords, credit cards details etc; by masquerading as a trustworthy person.

48. The drop() function deletes a column , if the axis =1 parameter is given.

49. Teacher.tail(1) prints the last element , Teacher.loc[6:] also prints the element at the last index , in this case.

50. The matplotlib.pyplot module needs to be imported for plotting charts.

51. The bar() function is used to plot a bar chart.

52. The color parameter with the color code can be used to specify the color of the bars.

53. The barh() function plots a horizontal bar chart.

54. The show() function displays a chart that is plotted.

55. The xlabel() function gives an x-axis title to a chart.