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**FIRST TERM EXAMINATION (2021-22)**

**SUBJECT: INFORMATICS PRACTICES MAXIMUM MARKS: 35**

**GRADE – XII Time Allowed: 90 Minutes**

General Instructions:

* The paper is divided into 3 Sections- A, B and C.
* Section A consists of Question 1 to 25 and student needs to attempt 20 questions.
* Section B consists of Question number 26 to 49 and student needs to attempt 20 questions.
* Section C consists of Question number 50 to 55 and student needs to attempt 5 questions.
* All questions carry equal marks.

**Section – A**

**Section A consists of 25 questions, attempt any 20 questions**.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are the trails of your activity on the internet.
   1. Plagiarism
   2. Digital Footprints
   3. Data Footprints
   4. Digital Data
2. Sharing personal or private information about someone else causing embarrassment or humiliation is termed as \_\_\_\_\_\_\_\_\_\_
   1. Cyber Stalking
   2. Phishing
   3. Identity theft
   4. Cyber bullying
3. To access the third to fifth elements if a dataframe D the command is:
   1. D[2:]
   2. D[3:5]
   3. D[2:5]
   4. D[2:6]
4. Which of the following is not true for Series in Pandas
   1. One dimensional data structure
   2. Stores heterogenous data
   3. Can store strings, integers and floating point numbers.
   4. Data is mutable but size is not mutable.
5. \_\_\_\_\_\_\_\_\_\_\_\_\_ attribute is used to get the number of elements in a dataframe.
   1. size
   2. shape
   3. values
   4. dtype
6. The act of tricking a recipient into clicking a malicious link, which leads to the installation of malware, the freezing of the system as part of a ransomware attack or the revealing of sensitive information is termed as:
   1. Cyber bullying
   2. Identity theft
   3. Cyber Stalking
   4. Phishing
7. To create a series S with scalar value 33, the command is (assuming pandas is imported as pd)
   1. S = pd.Series(33)
   2. S=pd.series(range(33))
   3. S=pd.Series(range(33))
   4. S=pd.Series(range(0,33,1))
8. Which of the following is not true for dataframe
   1. Can store heterogenous data
   2. Is a 2 dimensional data structure
   3. Columns contain same type of data for each row
   4. Data is mutable where as size is unmutable
9. Websites that install cookies on your devices, apps and websites that use your geolocation, and social media that uses your likes, shares and comments to profile you are examples of
   1. Active digital footprints
   2. Passive digital footprints
   3. Current digital footprints
   4. Secret digital footprints
10. Taking passages from multiple sources, piecing them together, and turning in the work as your own is an example of
    1. Plagiarism
    2. Copyright Infringement
    3. Trademark Infringement
    4. Patent Stealing
11. To sort the series X in ascending order of its values and store it into series Y, the correct command is
    1. Y=sort(X)
    2. Y=X.sort()
    3. Y=X.sort\_values()
    4. Y=X.sort.values()
12. To delete a column from a dataframe D, the command is:
    1. D.del(Column name)
    2. del D(Column name)
    3. d.pop(Column name)
    4. pop D(Column name)
13. Pandas is not used for
    1. Data analysis
    2. Data Visualization
    3. Data importing
    4. Data Manipulation
14. The command to give a name to index in a series ‘Student’ is
    1. Student.name = ‘SNO’
    2. Student.index.Name= ‘SNO’
    3. Student.index = ‘SNO’
    4. Student.index.name = ‘SNO’
15. IPR stands for \_\_\_\_\_\_\_\_\_\_\_\_\_\_
    1. Individual Property Right
    2. Intellectual Property Right
    3. Intelligent Property Right
    4. Intellectual Property Resources
16. CC (in reference to public license) stands for \_\_\_\_\_
    1. Creative Commons
    2. Common Creatives
    3. Creative Comments
    4. Creative Culture
17. A photograph, Software code for a website, Architectural plans and a song are a few examples of work that can be protected by getting
    1. Copyright
    2. Patent
    3. Trade license
    4. Agreement
18. For the dataframe DF shown below, the command that will display the record of Ali and Aru is

EName Sal Allow

0 Ali 16000 2000

1 Aru 17545 2500

2 Danish 42000 2900

3 Bilal 25000 3000

* 1. DF[-4:-2]
  2. DF[:2]
  3. DF[:-2]
  4. All of the above

1. A type of intellectual property consisting of a recognizable sign, design, or expression which identifies products or services of a particular source from those of others \_\_\_\_\_\_\_\_\_\_\_\_\_
   1. copyright
   2. patent
   3. trademark
   4. Keeping offline
2. \_\_\_\_\_\_\_\_\_\_\_\_\_ means unauthorized use of other’s trademark on products and services.
   1. Copyright Infringement
   2. Patent Stealing
   3. Trademark Infringement
   4. Plagiarism
3. The process of re-selling old electronic goods at lower prices is called \_\_\_\_
   1. reuse
   2. refurbishing
   3. recycle
   4. reduce
4. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an exclusive right granted for an invention of a product or a process that uses a new way of doing something
   1. copyright
   2. trademark
   3. patent
   4. creative license
5. From the following Series, the command to print 20,40 and 50 is:

import pandas

P= pandas.Series([10,20,30,40,50,60], index =['a','b',’c’,’d’, ‘e’, ‘f’])

* 1. print(P)
  2. print(P['b','d','e'])
  3. print(P[‘b’:’e’])
  4. P[['b','d','e']]

1. A copyright protects which of the following:
   1. The words in a novel
   2. The idea behind the story line of the novel
   3. Similar storyline expressed in different words
   4. Using the same names of the characters in a different novel.
2. The count attribute of the series returns
   1. Number of values in the series
   2. Number of numeric values in the series
   3. Number of non NaN values in the series
   4. Number of NaN values in the series

**Section B**

**Section B consists of 24 Questions (26 to 49). Attempt any 20 questions**

1. To create an index for an existing Dataframe DF the correct command is:
   1. DF.index =[‘A’, ‘B’, ‘C’, ‘D’, ‘E’]
   2. DF.Index =‘A’, ‘B’, ‘C’, ‘D’, ‘E’
   3. DF.index = [x for x in range(5)]
2. i) and iii)
3. i) and ii)
4. only i)
5. i), ii) and iii)
6. Give the output of the following code

import pandas as p

Dict = {"Jan":31, "Feb":28, "Mar": 31,"Apr":30}

S=p.Series(Dict)

Jan 31

Feb 28

Mar 31

Apr 30

dtype: int64

0 Jan 31

1 Feb 28

2 Mar 31

3 Apr 30

dtype: Object

31 Jan

28 Feb

31 Mar

30 Apr

dtype: Object

0 31 Jan

1 28 Feb

2 31 Mar

3 30 Apr

dtype: Object

1. If the dataframe D contains the following, the command print(D['Acc': 'IP'] ['Anil']) will display

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Anil | Amit | Akhil | Amrit |
| Math | 12 | 33 | 12 | 22 |
| Acc | 20 | 22 | 33 | 43 |
| B. St | 30 | 55 | 44 | 34 |
| IP | 24 | 25 | 34 | 45 |
| Eng | 55 | 65 | 67 | 66 |

|  |  |
| --- | --- |
| a)  Acc 20  B. St 30  IP 24  Name: Anil, dtype: int64 | b)  Acc 20  B. St 30  Name: Anil, dtype: int64 |
| c)  Anil Amit Akhil Amrit  Acc 20 22 33 43  B. St 30 55 44 34  IP 24 25 34 45 | d)  Acc 20  IP 24  Name: Anil, dtype: int64 |

1. What will be displayed if the dataframe DF is printed

import pandas as pd

List1**=[["Reeta", 20], ["Meeta", 22], ["Geeta",22], ["Neeta",20]]**

DF = pd.DataFrame(List1)

* 1. Reeta Meeta Geeta Neeta

0 20 22 22 20

* 1. 0 1

0 Reeta 20

1 Meeta 22

2 Geeta 22

3 Neeta 20

* 1. 0

Reeta 20

Meeta 22

Geeta 22

Neeta 20

* 1. 0

20 Reeta

22 Meeta

22 Geeta

20 Neeta

1. For the dataframe created using the commands given below, the incorrect command to give columns names is:

import pandas as pd

List1**=[["Reeta", 20], ["Meeta", 22], ["Geeta",22], ["Neeta",20]]**

DF = pd.DataFrame(List1)

* 1. DF.columns=['Name','Age']
  2. DF.columns=('Name','Age')
  3. DF.columns['Name','Age']
  4. DF.columns='Name','Age'

1. For the following dataframe displayed below, the command DF.loc['c':'d','EName'] will print

Name=pd.Series(["Ali","Aru","Danish","Bilal"])

Salary =pd.Series([16000,17545,42000,25000])

Allowance=pd.Series([2000,2500,2900,3000])

Dict = {'EName':Name,'Sal':Salary, 'Allow':Allowance}

DF = pd. DataFrame(Dict)

DF.index=['a','b','c','d']

* 1. 'Danish'
  2. Error message
  3. c Danish

d Bilal

Name: EName, dtype: object

* 1. EName Sal Allow

c Danish 42000 2900

d Bilal 25000 3000

1. Using the dataframe given below, the command to print the records of students aged 20 is

Name Age Mode

0 Reeta 20 Onsite

1 Meeta 22 Online

2 Geeta 22 Online

3 Neeta 20 Onsite

* 1. print(DF.Age==20]
  2. print(DF[DF[Age]==20])
  3. print(DF[DF.Age==20])
  4. print(DF[DF['Age']=20]

1. Using the dataframe given below, the command DF['Name'][DF.Age==DF.Age.max()]

Name Age Mode

0 Reeta 20 Onsite

1 Meeta 22 Online

2 Geeta 22 Online

3 Neeta 20 Onsite

* 1. 1 Meeta

2 Geeta

Name: Name, dtype: object

* 1. 1 Meeta 22 Online

2 Geeta 22 Online

Name: Name, dtype:object

* 1. Error
  2. 1 Reeta

2 Geeta

Name: Name, dtype: object

1. John wants to create a data series for the months and number of days. He has created two lists as shown in the code. Give the correct command to create a series that contains the names of the months as index and days as values

import pandas as pd

X=['Jan','Feb','Mar','Apr']

Y=[31,28,31,30]

* 1. D=pd.Series(X,index = Y)
  2. D=Series(X,index = Y)
  3. D=pd.Series(X,Y)
  4. D=pd.Series(Y,X)

1. Which of the following is not true for open source software
   1. The code can be known and modified to solve problems or can be adapted to specific needs.
   2. Modifications to the code can be freely redistributed.
   3. Quality is compromised as it allows people to change the code
   4. Combats unethical software predation, monopoly, and price-jacking.
2. For the given series Z, what will the command Z[::-3] print

10 Sunday

20 Monday

30 Tuesday

40 Wednesday

1. Thursday

|  |  |
| --- | --- |
| 50 Thursday  30 Tuesday  10 Sunday  dtype: object | 40 Wednesday  30 Tuesday  20 Monday  10 Sunday  dtype: object |
| 30 Tuesday  20 Monday  10 Sunday  dtype: object | 50 Thursday  20 Monday  dtype: object |

1. What will be the output of the following code:

import pandas as pd

s = pd.Series([1,2,3,4,5],index=['p','q','r','s','t'])

print(s>2)

* 1. r 3

s 4

t 5

dtype: int64

* 1. p False

q False

r True

s True

t True

dtype: bool

* 1. r True

s True

t True

dtype: bool

* 1. Error

1. For the dataframe created using the code given below, the D1.shape() prints

import pandas as pd

List = [{'Sunday':10, 'Monday':20}, {'Sunday':5, 'Monday':10, 'Tuesday':20}]

D1 = pd.DataFrame(List)

* 1. (2,2)
  2. (3,2)
  3. (2,3)
  4. (3,1)

1. A= pd.Series(range(100,500,100), index =[x for x in 'abdef']) command creates
   1. a 100

b 200

d 300

e 400

f 500

dtype: int64

* 1. a 100

b 200

c 300

d 400

e 500

dtype: int64

* 1. Error
  2. a 100

b 200

d 300

e 400

dtype: int64

1. If the following commands are given, predict the output

import pandas as pd

List = [{"Name": "Ali", "Age":20, "City":"Dubai"},{"Name": "Faraz", "Age":25, "City":"Sharjah"}]

B=pd.Series(List)

print(B)

0

Name [Ali, Faraz, Krish]

0 {'Name': 'Ali', 'Age': 20, 'City': 'Dubai'}

1 {'Name': 'Faraz', 'Age': 25, 'City': 'Sharjah'}

dtype: object

Name Age City

0 Ali 20 Dubai

1 Faraz 25 Sharjah

* 1. ValueError

1. A dictionary ‘toys’ contains the following:

Books={‘Name’:[ ‘Secret’, ‘Little Women’, ‘Magic’, ‘Cujo’], ‘Price’:[ 400,250, 300,150]}

Choose the incorrect command to create a dataframe Library with indexes B01, B02 etc.. is

* 1. S=pd.DataFrame(Books, ['B01','B02','B03','B04'])
  2. S=pd.DataFrame(Books, index in ['B01','B02','B03','B04'])
  3. S=pd.DataFrame(Books, index =['B01','B02','B03','B04'])
  4. S=pd.DataFrame(Books, index = [ x for x in ['B01','B02','B03','B04']])

1. For the Dataframe D, to print the maximum value in A, following commands are given. Chose the correct option.

A B C

0 20 30 40

1 30 40 10

2 40 20 10

1. D.max().['A']
2. D['A'].max()
3. D.max().'A'
4. D.max()['A']
   1. Only ii)
   2. Both i) and ii)
   3. Both ii) and iv)
   4. i), ii) and iv)
5. Working with the two dataframes given, what will be the output of the code

import pandas as pd

J = pd.DataFrame([14,10,12])

H = pd.DataFrame([23,22,33,44])

print(J+H)

* 1. 0

0 43

1 42

2 53

3 64

* 1. 0

0 37

1 32

2 45

3 NaN

* 1. 0

0 37.0

1 32.0

2 45.0

3 NaN

* 1. Error

1. Working with the two dataframes given, what command will give the given output

import pandas as pd

J = pd.DataFrame([14,10,12])

H = pd.DataFrame([23,22,33,44])

Output:

**0**

**0 37.0**

**1 32.0**

**2 45.0**

**3 44.0**

* 1. H.sum(J)
  2. H.add(J)
  3. J.sum(H,fill\_value=0)
  4. J.add(H,fill\_value=0)

1. Using the two dataframes, which command will not give the given output

Dataframe: A

Name Age City

0 Ali 20 Dubai

1 Faraz 25 Sharjah

Dataframe: D

A B C

0 20 30 40

1 30 40 10

2 40 20 10

Output:

0 50.0

1 65.0

2 NaN

dtype: float64

* 1. A.Age+D.B
  2. A['Age']+D['B']
  3. A.add.Age(D.B)
  4. A.Age.add(D.B)

1. Chose the incorrect option in relation to disposal of e-waste
   1. Sell off, donating your outdated technology
   2. Give your electronic waste to an E-Waste Recycler
   3. Give back to your Electronic companies or leave at Drop-off points.
   4. Dismantle/segregate metals, plastics for recycling etc.
2. Posing as someone else online, and using his/her personal information or login credentials, posting something online is a common type of cyber crime these days. The name for such kind of cybercrime is
   1. Cyber Stalking
   2. Cyber Bullying
   3. Identity Theft
   4. Phishing
3. Consider the DataFrame D, the command to change the score of Astha to 100

Name Age score

0 Rishi 25 80

1 Vinny 20 90

2 Reny 23 100

3 Astha 28 75

4 Sana 26 85

* 1. D[1]['Score']=100
  2. D['Score'][3]=100
  3. D[3]=100
  4. D[‘Astha’]=100

1. Consider the DataFrame D, the command to display the minimum score from the DataFrame D

Name Age score

0 Rishi 25 80

1 Vinny 20 90

2 Reny 23 100

3 Astha 28 75

4 Sana 26 85

* 1. D.min()
  2. D[min()]
  3. D[‘score’].min
  4. D[‘score’].min()

Section C

Section C consists of 6 Question (50 to 55). Attempt any 5 questions.

Case Study

A new student is coding a program to work with the given dataframe.

Ser1 = pd.Series({"Chess": 'Shiela', "Tennis":'Derek',"Cricket":'Rodrek'})

Ser2 = pd.Series({"Tennis":225,"Chess":330,"Football":350, "Cricket":200})

DF = pd.DataFrame({"Coach":Ser1,"Fee":Ser2})

Based on the above commands, answer the questions that follow:

1. What will be displayed if the data frame DF is printed?

|  |  |
| --- | --- |
| a)  Game Coach Fee  0 Chess Shiela 230  1 Tennis Derek 350  2 Cricket Rodrek 200  3 Football 250 | b)  Game Coach Fee  0 Chess Shiela 230  1 Tennis Derek 350  2 Cricket Rodrek 200  3 Football NaN 250 |
| c)  Coach Fee  Chess Shiela 330  Cricket Rodrek 200  Football NaN 350  Tennis Derek 225 | d) Coach Fee  0 Chess Shiela 330  1 Cricket Rodrek 200  2 Football NaN 350  3 Tennis Derek 225 |

1. To add a new game ‘VolleyBall’ with coach ‘Tulla’ and Fee as 220, the command is
   1. DF['VolleyBall']=["Tulla",220]
   2. DF['VolleyBall']=("Tulla",220)
   3. DF.iloc['BaseBall']=("Ana",320)
   4. DF.loc['VolleyBall']=("Tulla",220)
2. To add a new column Discount with values as 10% of the Fee, the command is
   1. DF.Discount=DF.Fee\*.10
   2. DF['Discount']=DF.'Fee'\*.10
   3. DF['Discount']=DF.Fee\*.10
   4. DF['Discount']=DF[Fee]\*.10
3. To rename the column Fee as Amount, the command given is
   1. DF.columns=['Amount']
   2. DF.rename(columns={'Fee':'Amount'})
   3. DF.rename('Fee':"Amount")
   4. DF.columns.['Fee']=['Amount']
4. Consider the DataFrame, namely Stud , given below, which command will print the first three columns of the dataframe

StudentID English IP Accts Eco

0 S2324 100 97 100 95

1 S4343 85 96 88 90

2 S5434 92 95 88 87

3 S6817 65 99 87 89

* 1. Stud.loc[: , :2]
  2. Stud.loc[: , :-2]
  3. Stud.loc[: , :2]
  4. Stud.iloc[: , :3]

1. Using the Stud DataFrame Stud given above, Which of the following commands will create a new column with the sum of the 4 previous columns
   1. Stud[‘Total’]= Stud[English]+ Stud[Accts]+ Stud[IP] +Stud[Eco]
   2. Stud[Total]= Stud[English]+ Stud[Accts]+ Stud[IP]+Stud[Eco]
   3. Stud[‘Total’]= Stud.English+ Stud.Accts+ Stud.IP +Stud.Eco
   4. Stud.Total= Stud[‘English’]+ Stud[‘Accts’]+ Stud[‘IP’] + Stud[‘Eco’]

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