مـــدرسـة دلهـــي الخـاصـة ذ.م.م.
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(Approved & Recognized By Ministry of Education - United Arab Emirates)
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PRE BOARD EXAMINATION (2021-22)
TERM I – SET A

SUBJECT : INFORMATICS PRACTICES **TIME ALLOWED: 90 MINS**
GRADE – XII **MAXIMUM MARKS: 35**

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. What will be syntax for pandas dataframe?
   a) pandas.DataFrame(data, index, dtype)
   b) pandas.DataFrame(data, index, rows, dtype)
   c) pandas_DataFrame(data, index, columns, dtype)
   d) pandas.DataFrame(data, index, column, dtype)
2. Which of the following statement will print Series 'S1' in reverse order?
   a) print(S1[: : 1]
   b) print(S1[: : -1]
   c) print(S1[-1: : 1]
   d) print(S1.reverse( ))
3. For the given code, predict the output

```
x=[10,20,30,40]
y=pandas.Series([10,20,30,40])
print(x*2)
print(y*2)
```

a) [10, 20, 30, 40, 10, 20, 30, 40]
0 20
1 40
2 60
3 80
dtype: int64

b) 0 20
1 40
2 60
3 80
dtype: int64
[10, 20, 30, 40, 10, 20, 30, 40]

c) [10, 20, 30, 40, 10, 20, 30, 40]
Error

d) Error

4. When an operation is carried out on every value of Series object is called _____.
   a) Scalar Operation
   b) Vector Operation
   c) Both of the above
   d) None of the above

5. What will be the value stored in the Series P after the code is executed
   P= pandas.Series([y for y in range(10,70,10)], index =[x for x in 'abcdef'])
   P['a':'c']=300
   P[0]=100
   P[['a','d']]=200

   a) a 100
   b 300
   c 300
   d 40
   e 50
   f 60
   dtype: int64

   b) a 200
   b 300
   c 300
   d 200
   e 50
   f 60
   dtype: int64

   c) a 10
   b 20
   c 30
   d 40
   e 50
   f 60
   dtype: int64
   Error

   d) a 300
   b 300
   c 300
   d 40
   e 50
   f 60
   dtype: int6

ASSERTION BASED QUESTIONS: In each of the questions given below, there are two statements marked as Assertion (A) and Reason (R).

Mark your answer as per the codes provided below:

(A) A is true but R is false.

(B) Both A and R are true

(C) A is false but R is true.

(D) Both A and R are false.

6. Assertion – Two basic data structure in Python are: Series and Dataframe. But both are different from each other.
   Reason - Series stores heterogenous data while Dataframe stores homogenous data.
   a) Assertion is True & Reason is correct explanation of Assertion
   b) Assertion is True, but Reason is partially True
   c) Assertion is True but Reason is False
   d) Both Assertion and Reason are False
7. Assertion – DataFrame is a two-dimensional Pandas structure, with ordered collections of columns that can store data of different types.
   Reason - Dataframe is an array-like structure with two indices or axes – row index (axis = 0) and column index (axis=1). Dataframe is value mutable as well as size- mutable with heterogeneous data.
   a) Assertion is True & Reason is correct explanation of Assertion
   b) Assertion is True, but Reason is partially True
   c) Assertion is True but Reason is False
   d) Both Assertion and Reason are False
8. Assertion (A): Boolean indexing is a type of indexing.
   Reasoning (R) : DataFrame.loc(False) function can be used to find the relative values where index value is False
   a) Both A and R are true, and R is the correct explanation of A.
   b) A is true but R is false.
   c) A is false but R is true.
   d) Both A and R are false
9. Assertion (A):
   DataFrame.count() function will display the sum of the values from the data frame
   Reason (R): axis=0, argument is to used to find sum column-wise
   a) Both A and R are true and R is the correct explanation of A.
   b) A is true but R is false.
   c) A is false but R is true.
   d) Both A and R are false
10. Assertion (A): sorting is the operation to arrange data in a specific order, sort_values () function used to perform the operation
    Reasoning (R): Row wise sorting cannot be performed in python dataframe objects
    a) Both A and R are true and R is the correct explanation of A.
    b) Both A and R are Ture and R is not the correct explanation of R .
    c) A is True but R is false.
    d) Both A and R are false
11. ASSERTION(A) : legend (labels = [‘Text’]) is used to give title to the graph
    REASON(R) : plt.savefig(“path”) will save the current graph in png or jpeg format
    a) A is true but R is false.
    b) Both A and R are true
    c) A is false but R is true.
    d) Both A and R are false.

12. Assertion (A): The source code of weka software can be modified and shared as it's an open source data mining software.
    Reason (R): Open-source software is computer software that is released under a license in which the copyright holder grants users the rights to use, study, change, and distribute the software and its source code. Read the statements and choose the correct option.
    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
    c) (A) is true, but (R) is false.
    d) (A) is false, but (R) is true.
13. Assertion(A): Matplotlib is a graph plotting Library.
    Reasoning (R): It can't plot 3D Charts.
    a. A is True R is False
    b. Both A and R are True
    c. A is False R is True
    d. Both A and R are False
14. A figure/chart contains _____
    a) Plotting area
    b) Legend
    c) Axis labels
    d) All of the above
15. Give the output of the following code
    S = pandas.Series(['a1','b1','c1','d1','e1'])
    print(S[[1,3]])
    a) 2 c1
       3 d1
       4 e1
       dtype: object
    b) 0 a1
       1 b1
       2 c1
       dtype: object
    c) 1 b1
       3 d1
       dtype: object
    d) 1 b1
       2 c1
       3 d1
       dtype: object
16. Which of the following statements is used to create a histogram of 'step' type with 20 bins?
    a) plt.hist(x, bins = 20, histype = "barstacked")
    b) plt.hist(x, bins = 20)
    c) plt.hist(x, bins = 20, histype = "step")
    d) plt.hist(x, bins = 20, histype = step())
17. Predict the output:

```
import pandas as pd
S1 = pd.Series(data = range(32, 2, -4), index = [x for x in "Rajdhani" ])
print(S1)
```

a)	b)	c)	d)
R 32 a 28 j 24 d 20 h 16 a 12 n 8 i 4	0 32 1 28 2 24 3 20 4 16 5 12 6 8 7 4	Error	32 R 28 a 24 j 20 d 16 h 12 a 8 n 4 i

18. The part of chart which identifies different sets of data plotted on plot by using different colours is called:
    a) legends
    b) title
    c) axes
    d) figure
19. Using Python Matplotlib _____ can be used to count how many values fall into each interval.
    a) line plot
    b) bar graph
    c) histogram
    d) Pie graph
20. The data points plotted on a graph are called
    a) points
    b) pointers
    c) marks points
    d) marker
21. Which of the following is NOT an intellectual property?
    a) a. A poem written by a poet
    b) b. An original painting made by a painter
    c) c. Trademark of a Company
    d) d. A remixed song
22. _____is the attempt to acquire sensitive information such as usernames, passwords and credit card details by masquerading as a trustworthy entity in an electronic communication.
    a) Pharming
    b) Phishing
    c) Attack
    d) Malware
23. What is true about Data Visualization?
    a) Data Visualization is used to communicate information clearly and efficiently to users by the usage of information graphics such as tables and charts.
    b) Data Visualization helps users in analyzing a large amount of data in a simpler way.

c) Data Visualization makes complex data more accessible, understandable, and usable.
d) All of the above

24. How many values will be there in array1, if given code is not returning any error?

>>> series4 = pd.Series(array1, index = [“Jan”, “Feb”, “Mar”, “Apr”])

a) 1 b. 2 c. 3 d. 4

25. Fill in the blank to get the ouput as 3

```
import pandas as pnd
S1=pnd.Series([1,2,3,4], index = ['a','b','c','d'])
print(S1[_____])
```

a) ‘c’ b. 2 c. c d. All of the above

SECTION B

26. What will be the output, if the following commands are executed?

```
from pandas import *
D = DataFrame([[10,20,30,40],[100,200,300,400],[33,22,44,55]])
print(D.shape)
```

a) 12
b) [4,3]
c) (4,3)
d) (3,4)

27. If the following Data Frame is created, which command will create the index

```
from pandas import *
D = DataFrame([[10,20,30,40],[100,200,300,400],[33,22,44,55]])
```

a) D.index=['A','B','C','D']
b) D.index=['A','B','C']
c) D.index[]=['A','B','C']
d) D.index()=['A','B','C','D']

28. For the given DataFrame named V

	E1	E2	E3	E4
Name	Anil	Sunil	Vimal	Kamal
Age	23	36	66	43
Dept	Sales	Hr	Accts	Prod

Which command will not print the given output

a) V['Age':'Dept']
b) V[1:3]
c) V.iloc[1:3]
d) V[:-1]

29. For the given DataFrame named V

	E1	E2	E3	E4
Name	Anil	Sunil	Vimal	Kamal
Age	23	36	66	43
Dept	Sales	Hr	Accts	Prod

What will be the output of V.iloc[1,1:3]

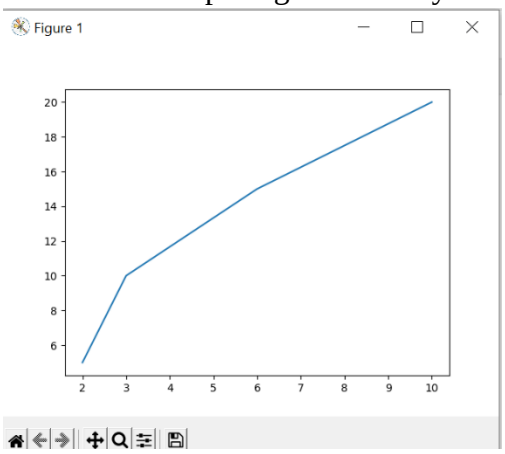
a) E2 36
   E3 66
   Name: Age, dtype: object
b) E2 Hr
   E3 Accts
   Name: Dept, dtype: object
c) Error
d) E1 23
   E2 36
   E3 66
   Name: Age, dtype: object

30. After practical, Remi left the computer laboratory but forgot to sign off from her email account. Later, her classmate Sanat started using the same computer. She is now logged in as Remi. She sends inflammatory email messages to few of his classmates using Remi's email account.
    Sanat's activity is an example of which of the following cyber-crime?
    a) Plagiarism (b) Hacking (c) Identity theft (d) Cyber bullying
31. Sumita is using her internet connection to book a train ticket. This is a classic example of leaving a trail of web activities carried by her. What do we call this type of activity?
    a) Digital login (b) Digital Footprint (c) Digital Log off (d) Digital Error
32. Which of the following action can be taken to keep the digital footprint clean?
    a) Search what information you leftover social media and the internet
    b) Be smart and sensible while using any website, sending an email or opening a link
    c) Control visibility settings from the browser or website/app settings
    d) remove any private details like mobile number, school, college name, address, photos etc.

Rishi uses computer and mobile for his personal use. Study the following cases and answer the questions given below.

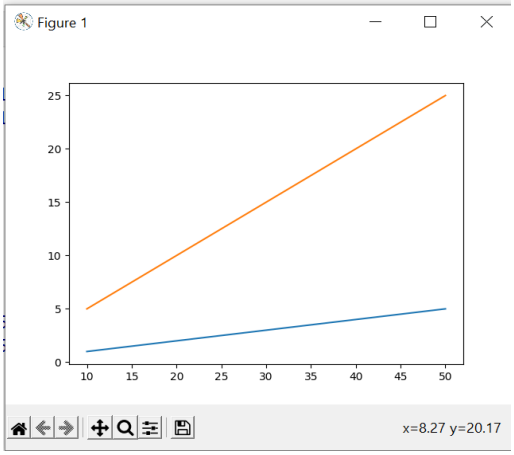
I. Once he got the message in WhatsApp that CBSE is announcing the result of class XII tomorrow at 12:00 pm. He forwarded the message to his few friends. But later he came to know that no such announcement was there in CBSE official web-site.
II. He is visiting several web-sites.
III. He is getting abuse messages from an unknown number due to which he is thinking of quarreling with that person.
IV. He registered himself in one website by giving his email id and phone number but later his friend told him about the concept of digital footprint. He is now thinking about canceling the registration so that his personal information can be deleted from that website.
V. He uploaded one video in his youtube channel where he used one background music downloaded from somewhere on Internet

33. In case (I), he is violating:
    a) net etiquettes
    b) Communication etiquettes
    c) copy right
    d) None of the above
34. In case (II), he is leaving:
    a) Active digital footprint
    b) Passive digital footprint
    c) There is no chance of any digital footprint
    d) None of the above
35. In case (III), the unknown person can be called as:
    a) Cyber bully
    b) Internet troll
    c) Hacker
    d) Cracker
36. In case (IV) which one is correct:
    a) His data will be deleted forever after cancelling the registration.
    b) His data will be deleted after 30 days since it is a digital footprint.
    c) His data will never be deleted since it became the digital footprint.
    d) As per the terms and condition of that website, data will be deleted.
37. In case (V), he may be violating:
    a) copyright
    b) Intellectual property right
    c) plagiarism
    d) None of the above
38. Proprietary software is a software which is available _____
    a) free of charge
    b) on paying license fee
    c) free for first year only
    d) free to use but requires fee for modification
39. Observe the output figure. Identify the coding for obtaining this output.



a)
```
import matplotlib.pyplot as plt
plt.plot([2,3,6,10],[5,10,15,20])
plt.show()
```
b)
```
 import matplotlib.pyplot as plt
df.plot(kind='line')
plt.show()
```
c)
```
import matplotlib.pyplot as plt
plt.line([2,3,6,10],[5,10,15,20])
plt.show()
```
d)
```
import matplotlib as plt
plt.plot([2,3,6.5,10.5],[5,10,15,20])
plt.show()
```

40. Observe the output figure. Identify the code to obtain the same:



a)
```
import matplotlib.pyplot as pl
a = range(10,60,10)
b = range(1,6)
c = range(5,30,5)
pl.plot(a,b)
pl.plot(a,c)
pl.show()
```
b)
```
import matplotlib.pyplot as pl
a = range(1,6)
b = [10, 20, 30, 40, 50]
c = [5, 10, 15, 20, 25]
pl.plot(a,b)
pl.plot(a,c)
pl.show()
```
c)
```
import matplotlib.pyplot as pl
a = [1,2,3,4,5]
b = [10, 20, 30, 40, 50]
c = [5, 10, 15, 20, 25]
pl.plot(a,b)
pl.plot(a,c)
pl.show()
```
d)
```
import matplotlib.pyplot as pl
a = range(10,60,10)
b = range(1,6)
c = range(5,30,5)
pl.plot(b,a)
pl.plot(a,c)
pl.show()
```

41. For the following data stored in Data Frame R, the command to display the year when there were more than 25 passengers in the month of January is

	Year	Month	Passengers
0	2010	Jan	25
1	2010	Mar	50
2	2012	Jan	35
3	2010	Dec	55
4	2012	Dec	65

a) R['Year'][(R['Month'=='Jan']) &(R['Passengers'>25])]
b) R['Year'][(R['Month'=='Jan']) and(R['Passengers'>25])]
c) R['Year'][(R['Month']=='Jan') &(R['Passengers']>25)]
d) R['Year'][(R['Month'=='Jan'] and R['Passengers'>25])]

42. Using the above data frame, the command to change the index to the year is
    a) R.set_index('Year')
    b) R.reindex('Year')
    c) R.set_index('Year', inplace=True)
    d) R.reindex=['Year']
43. Which of the following is not considered as cyber bullying
    a) Hacking into someone's gaming or social networking profile
    b) Spreading secrets or rumours about people online
    c) Participating in text wars or text attacks.
    d) Posting tweets or Facebook posts
44. From the following choose which is not an example of copyright infringement
    a) Downloading and sharing music, videos, and games from internet
    b) Using a published photograph.
    c) Placing full-text articles on a web page
    d) Making a movie file or a large segment of a movie available on a web site.
45. Select the correct output from the following code

```
A= pandas.Series(range(100,105), index =[x for x in 'abdef'])
S = pandas.Series(range(10,15), index =[x for x in 'abcde'])
print(A+S)
```

a)
```
a  110.0
b  112.0
c    NaN
d  115.0
e  117.0
f    NaN
dtype: float64
```

b)
```
a  110.0
b  112.0
c    NaN
d  115.0
e  117.0
f  120.0
dtype: float64
```

c)
```
a  110.0
b  112.0
c    NaN
d  115.0
e  117.0
f  119.0
dtype: float64
```

d)
```
a  110.0
b  112.0
c  114.0
d  116.0
e  118.0
f    NaN
dtype: float64
```

46. For the Series Object 'Item', the correct command to print the items that are priced more than 250 is

Table	300
Chair	230
Board	275

Screen	500
Bag	125

a) 'Item'[Item>250]
b) Item[Item>250]
c) [Item['Item'>250]]
d) [‘Item’['Item'>250]]

47. Which is the correct command(s) to create the given series

Table	300
Chair	230
Board	275
Screen	500
Bag	125

i. Item = pandas.Series([300,230,275,500,125], ['Table', 'Chair', 'Board', 'Screen', 'Bag'])
ii. Item = pandas.Series(['Table', 'Chair', 'Board', 'Screen', 'Bag'], [300, 230, 275, 500, 125])
iii. Item = pandas.Series([300,230,275,500,125], index =['Table', 'Chair', 'Board', 'Screen', 'Bag'])

a) Only (i)
b) (i) and (ii)
c) (i) and (iii)
d) All of the above

48. Write the output of the following :

```
import pandas as pd
S1=pd.Series([1,2,3,4])
S2=pd.Series([7,8])
print((S1+S2).count())
```

a) 6 b. 4 c. 2 d. 0

49. To display 4^{th}, 5^{th}, 6^{th} columns from the 7^{th} to 9^{th} rows of a DataFrame df, the correct command is

a) df.iloc[7:10,4:7]
b) df.iloc[7:9,4:6]
c) df.loc[7:10,4:9]
d) df.loc[7:9,4:6]

SECTION C

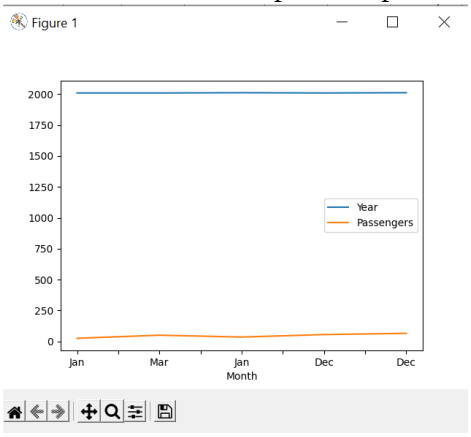
Shobit is working in an organization as data analyst. He uses Python Pandas and Matplotlib for the same. He got a dataset of the passengers for the year 2010 to 2012 for January, March and December. His manager wants certain information from him, but he is facing some problems. Help him by answering few questions given below:

	Year	Month	Passengers
0	2010	Jan	25
1	2010	March	50
2	2012	Jan	35
3	2010	Dec	55
4	2012	Dec	65

Code to create the above data frame:

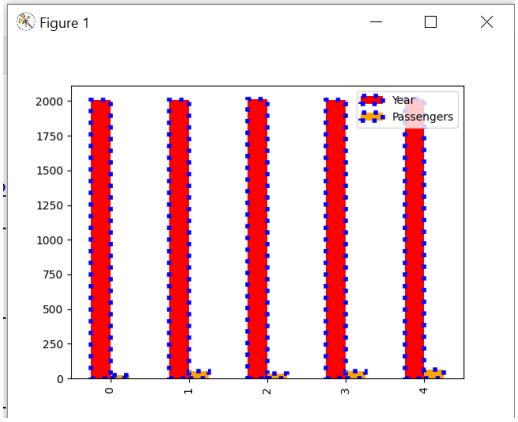
```
import pandas as pd
data={ "Year":[2010,2010,2012,2010,2012],
       "Month":["Jan","Mar","Jan", "Dec", "Dec"],
       "Passengers":[25,50,35,55,65]}
df=pd. DataFrame(data)
print(df)
```

50. Give a command to add a new column Kilometers with data: [55,56,59,90,56,48]
    a) Df.”kms”=[55,56,59,90,56,48]
    b) df.add[“kms”]=[55,56,59,90,56,48]
    c) df[kms]= [55,56,59,90,56,48]
    d) df["kms"]=[55,56,59,90,56]
51. He wants to print the details of "January" month along with the number of passengers, Identify the correct statement:
    a) df.loc[['Month','Year']]
    b) df[['Month','Year']]
    c) df.iloc[['Month','Year']]]
    d) df(['Month','Year']])
52. Which command will help him to delete the month and year column from the Data Frame
    a) df.drop(['Month','Year'],axis=0)
    b) df.drop(['Month','Year'])
    c) df.drop(['Month','Year'],axis=1)
    d) df.drop(['Month':'Year'],axis=1)
53. To print the following graph from the Data Frame, the commands tobe given are (assuming that the command import matplotlib.pyplot as plt is already given)



a) df.plot(kind='line', axes='Month')
plt.show
b) df.plot(kind='line', x='Month')
plt.show
c) df.plot(kind='line')
plt.show()
d) df.plot(kind='line', x='Month')
plt.show()

54. To create the following chart, the correct command is :



a) df.plot(kind ='bar', color =['red','orange'],linewidth=4, linestyle=':')
b) df.plot(kind ='bar', x='Month', color =['red','orange'], linewidth=4, linestyle=':', edgecolor='blue')
c) df.plot(kind ='bar', color =['red','orange'], linewidth=4, linestyle=':', edgecolor='blue')
d) df.plot(kind ='bar', color =['orange','red'], linewidth=4, linestyle=':', linecolor='blue')

55. To print the rows where the year is 2010, the incorrect command is:
a) R[R["Year"]==2010]
b) R[R."Year"==2010]
c) R.iloc[[0,1,3]]
d) R.loc[[0,1,3]]

***