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INDIAN SCHOOL SOHAR

UNIT TEST I (2023-24)

INFORMATICS PRACTICES (065)

SET -2

CLASS : XII **MAX.MARKS :20**

DATE : 25/05/2023 **TIME: 40 MINS.**

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 6 questions each carrying 01 mark.
4. Section B has 1 Very Short Answer type question carrying 02 marks.
5. Section C has 1 Short Answer type question carrying 03 marks.
6. Section D has 1 Long Answer type question carrying 04 marks with internal choice provided against **part iii**.
7. Section E has 1 question with internal choice carrying 05 marks.

SECTION A

1. Given a pandas series called **s1**, the command which will display the last 3 rows is ____. 1

   a. print(s1.tails(3)) b. print(s1.tail(3))

   c. print(s1.Tails(3)) d. print(s1.Tail(3))

2. To check if the Series object has **NaN** values _____ attribute may be used. 1

   a. empty b. hasnans

   c. hasnans() d. empty()

3. To get the Transpose of a dataframe **df**, you can write _____. 1

   a. print(df.t) b. print(df.T)

   c. print(df.transpose) d. print(df.Transpose)

4. The axis 1 identifies a dataframe's _____. 1

   a. rows b. columns

   c. datatype d. values

Q5 and Q6 are **ASSERTION AND REASONING** based questions. Mark the correct choice as :

a. Both A and R are True and R is the correct explanation for A

b. Both A and R are True and R is not the correct explanation for A

c. A is True but R is False

d. A is False but R is True

5. **Assertion (A) :** The index of a Pandas Series must be unique. 1
   Reason (R): The index of a Pandas Series can be of any data type, including numerical, string and date-time data types.

6. **Assertion (A)**:- A Dataframe has both a row and column index. 1

Reasoning (R): - A Dataframe is a 2-D labelled data structure like a table in MySQL.

SECTION-B

7. Differentiate between Series and Dataframe. 2

SECTION-C

8. Write the code in python to create : 1+2

i.The following Series object **s1** using an array**.**

	s1
a	12000
b	14000
c	7500
d	9000
e	NaN

ii. The following Dataframe object **df1** using list of dictionaries**.**

df1

	SNO	**NAME**	**DESIG**	**GRADE**
A	**1**	**aaa**	**PGT**	**A1**
B	**2**	**bbb**	**PRT**	**C1**
C	**3**	**ccc**	**TGT**	**B1**
D	**4**	**ddd**	**PGT**	**A2**

SECTION-D

9. Given a Series object **ser1** as follows: 1+1+2

	ser1
1004	a
1003	c
1002	b
1005	e
1001	d

Answer the questions given below.

i. Display **ser1** in descending order of index.

ii. Display the first 3 elements from Series **ser1.**

iii. Predict the output of the following code:

```
print(ser1.index)
print(ser1.values)
```

OR

Predict the output of the following:

```
print(ser1.sort_values(ascending=False))
print(ser1.ndim)
```

SECTION E

10. A. A fruit shop stores its inventory in a Dataframe **shop** as follows: 5

shop

	Fruits	Pulses	Rice	Wheat
Tripura	44	23	814	1
Gujarat	11950	818	1888	3452
Punjab	7152	33	11456	12311
Kerala	14016	2166	6787	3000
Vizag	7830	890	3765	NaN

Write the statements to do the following:

i. Add a new column **Total** which is the sum of all items at the store.

ii. Display **Wheat** and **Rice** produced by each state.

iii. Display the number of states producing **Wheat**.

iv. Display the quantity of **Fruits** produced by **Kerala**.

v. Delete the details of **Vizag**.

OR

B. Details of sales in ABC Corporation are stored in a Dataframe **corp** as follows:

corp

	Target	Sales
zoneA	56000	58000
zoneB	70000	68000
zoneC	75000	78000
zoneD	60000	61000

Write the statements to do the following:

i. Rename the columns **Target** as **Goal** and **Sales** as **Achieved**.

ii. Display the **Target** for **zoneA** and **zoneB**.

iii. Display the last 2 rows.

iv. Display the details of **corp** where **Sales** is between 50000 and 65000.

v. Change the value at 4^{th} row in **Target** to 55000.

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INDIAN SCHOOL SOHAR

UNIT TEST I (2023-24)

INFORMATICS PRACTICES (065)

SET-1

CLASS :XII **MAX.MARKS :20**

DATE : 25/05/2023 **TIME: 40 MINS.**

General Instructions:

1. This question paper contains five sections, Section A to E.
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SECTION A

1. To create an empty Series object, you can use: 1

   a. pd.Series(empty) b. pd.Series()

   c. pd.Series(np.NaN) d. all of these

2. To get the number of elements in a Series object, _____ attribute may be used. 1

   a. index b. size

   c. len() d. ndim

3. If a Dataframe is created using a 2D dictionary, then the index/row labels are formed from _____. 1

   a. outer dictionary's values b. inner dictionary's keys

   c. inner dictionary's values d. outer dictionary's keys

4. To get a number representing the number of axes in a Dataframe, _____ attribute may be used. 1

   a. shape b. size

   c. itemsize d. ndim

Q5 and Q6 are **ASSERTION AND REASONING** based questions. Mark the correct choice as :

a. Both A and R are True and R is the correct explanation for A

b. Both A and R are True and R is not the correct explanation for A

c. A is True but R is False

d. A is False but R is True

5. **Assertion (A) :** Slicing can be also used to modify the series elements. 1
   Reason (R): Series elements can be modified with list of values respectively.

6. **Assertion (A)**:- The **iloc** method in pandas dataframe allows us to access a subset of data by providing the row and column indices. 1

Reasoning (R): - The **iloc** method stands for integer-location based indexing, where we can pass integer indices to get a subset of data. We can also use slicing to select a range of rows or columns.

SECTION-B

7. Differentiate between Series and Lists. 2

SECTION-C

8. Write the code in python to create: 1+2

i. A Series object **greek_alphabets** using lists**.**

greek_alphabets

row1	Alpha
row2	Beta
row3	Gamma
row4	Delta
row5	Epsilon

ii. A Dataframe object **ipl23** using 2D- dictionary**.**

ipl23

	MATCHES	WON	LOST	PTS	NRR
Super Kings	**7**	**5**	**2**	**10**	**0.662**
Titans	**7**	**5**	**2**	**10**	**0.58**
Royals	**7**	**4**	**3**	**8**	**NaN**
Super Giants	**7**	**4**	**3**	**8**	**0.54**

SECTION-D

9. Given two Series objects **s1** and **s2** as follows: 1+1+2

	s1
0	6
1	7
2	5
3	8
4	7

	s2
0	4
2	6
3	7
4	5
5	9

Answer the questions given below:

i. Display the second element from **s1**.

ii. Display alternate elements starting from index 0 from Series **s1.**

iii. Predict the output of the following code:

```
s3=s1+s2
print("Sum of 2 series objects \n", s3)
```

OR

Predict the output of the following code:

```
print(s1>5,s1[s1>5],sep="\n")
```

SECTION E

10. Mr. ABC made a Dataframe **tests** to store the details of tests of students across 3 months as follows. 5

tests

	col1	col2	col3	Res
t1	100	100	60	TRUE
t2	95	100	57	TRUE
t3	89	100	53	FALSE
t4	83	85	49	FALSE

Help him in writing the statements to do the following:

i. Display the details of **tests** where **col3** has values between 40 and 50**.**

ii. Rename indexes **t2** and **t3** as **team2** and **team3** respectively.

iii. Delete rows **t1** and **t4**.

iv. Add a column **eligible** with the default value as **yes**.

v. Add a new row **t5** with the values : **90, 86, 89, TRUE**

OR

The scores of batsmen across 2 matches are stored in a Dataframe **cricket** as
shown below:

cricket

	Name	Score1	Score2
0	Sunil	90	80
1	Gaurav	65	45
2	Piyush	70	90
3	Karthik	80	76

Write the statements to do the following:

i. Add both the scores and assign it to a column named **Final.**

ii. Change the order of columns as **Score1, Name** and **Score2.**

iii. Display the details of batsmen who have scored more than 75 in both
Score1 and **Score2**.

iv. Delete the details of **Karthik**.

v. Increase the score of **Gaurav** in **Score1** by 5.