



SHREE VALLABH ASHRAM'S MCM KOTHARI INTERNATIONAL GIRLS'
RESIDENTIAL SCHOOL, KILLA PARDI
PRELIM TEST-2, 2019-20

CLASS XIIC

INFORMATICS PRACTICES (065) MM: 70, TIME: 3Hrs
14/12 /19

GENERAL INSTRUCTIONS:

All questions are compulsory

1. What will be output after following program execution? 2

```
import pandas as pd
table = {
    "Name": ["anil", "vishal", "manish", "mohak"],
    "Age": [12, 34, 22, 14],
}
df = pd.DataFrame(table)
print(df)
print(df.pivot_table(index="Name", columns="Name", values="Age"))
```
2. Create a data frame with following values 3

	Brand	Price	Year
0	Samsung J7	22000	2015
1	Vivo V11	25000	2013
2	Honor play	27000	2018
3	Xiomi mi8	35000	2018

 - a) Write the command to sort the data on Brand name
 - b) Write the command to sort the data on Brand name in descending order
 - c) Write the command to sort the data on first year basis then price in ascending order
3. Write a NumPy program to create a 3x3 identity matrix, i.e. diagonal elements are 1, the rest are 0. Replace all 0 to random number from 10 to 20 3
4. Write a Pandas program to count the number of rows and columns of a DataFrame. 3

Sample Python dictionary data and list labels:

```
Exam_data = {'name': ['Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael', 'Matthew', 'Laura', 'Kevin', 'Jonas'],
'score': [12.5, 9, 16.5, np.nan, 9, 20, 14.5, np.nan, 8, 19],
'attempts': [1, 3, 2, 3, 2, 3, 1, 1, 2, 1],
'qualify': ['yes', 'no', 'yes', 'no', 'no', 'yes', 'yes', 'no', 'no', 'yes']}
labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']
```

Expected Output:
Number of Rows: 10
Number of Columns: 4
5. Write a Pandas program to select the rows where number of attempts in the examination is less than 2 and score greater than 15. 3

Sample Python dictionary data and list labels:

```
exam_data = {'name': ['Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael', 'Matthew', 'Laura', 'Kevin', 'Jonas'],
'score': [12.5, 9, 16.5, np.nan, 9, 20, 14.5, np.nan, 8, 19],
'attempts': [1, 3, 2, 3, 2, 3, 1, 1, 2, 1],
'qualify': ['yes', 'no', 'yes', 'no', 'no', 'yes', 'yes', 'no', 'no', 'yes']}
labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']
```

Expected Output:

Rows where score between 15 and 20 (inclusive):
 attempts name qualify score
 c 2 Katherine yes 16.5
 j 1 Jonas yes 19.0

6. Suppose a data frame contains information about student having columns rollno, name, class and section. Write the code for the following: 2
 - (i) Add one more column as fee .
 - (ii) Write python code to delete column fee of data frame.
7. (i) Which of the following will run without errors? 2
 - a) round(45.8)
 - b) round(6352.898,2,5)
 - c) round()
 - d) round(7463.123,2,1)

(ii) What data type is the object below ?
 L = [1, 23, 'hello', 1].

 - a) list
 - b) dictionary
 - c) array
 - d) tuple
8. Write a python program using matplotlib.pyplot library to create a bar graph with following list values 2

```
x = [2,4,6,8,10]
y=[3,9,11,2,6]
```
9. Write Output ? 2

```
import pandas as pd
data = [{'a': 1, 'b': 2},{'a': 5, 'b': 10, 'c': 20}]
#With two column indices, values same as dictionary keys
df1 = pd.DataFrame(data, index=['first', 'second'], columns=['a', 'b'])
#With two column indices with one index with other name
df2 = pd.DataFrame(data, index=['first', 'second'], columns=['a', 'b1'])
print df1
print df2
```
10. What will be the output of the following code ? [4 M] 3

```
import pandas as pd
import numpy as np
#Create a Dictionary of series
d = {'Name':pd.Series(['Sachin','Dhoni','Virat','Rohit','Shikhar']),
'Age':pd.Series([26,25,25,24,31]),
'Score':pd.Series([87,67,89,55,47])}
#Create a DataFrame
df= pd.DataFrame(d)
print (df)
print(df.count())
print("count age",df[['Age']].count())
print("sum of score",df[['Score']].sum())
print("maximum score",df[['Score']].max())
print("mean age",df[['Age']].mean())
print("mode of age",df[['Age']].mode())
print("median of score",df[['Score']].median())
```
11. Explain Pandas iterrow(). Give example. 3
12. (i) Write the syntax to transpose a dataframe? 2
 (ii) Which method is used to compare two dataframe?
13. Name any two functions of numpy module to create numpy array? 2
14. What is the main advantage of using Linear Regression? 2
15. Write one similarity and one difference between pivot() and pivot_table()? 2
16. Write the Python command to create a histogram 2
 - (a) from column having numeric data only in the given Dataframe.
 - (b) from the specific column (say Category) only
17. What is piping of functions in Python? Write the statement to do simple arithmetic 2

- calculation On the given dataframe using pipe() function
18. What is the purpose of reindex() function? Write the statement to (a) reordering the existing Row Index (b) adding new index as column index to an existing dataframe 2
 19. Write the output of the following 2
 - (a) `arr=numpy.array([10,20,30,40,50,60,70,80,90,100])`
`print(arr[2:5,1])`
 - (b) `arr=numpy.array([[1,2,3,4],[10,20,30,40],[100,200,300,400],[1000,2000,3000,4000]])`
`print(arr[1:2,-1])`
 20. Give an example to find covariance in Python 2
 21. Write a Python connectivity script to create a table Student having(with Rno, SName, Class) 3
 22. Write a function that process a GET request and display "Home.html" 2
 23. Predict the output of the following code 2

```
x=np.array([1,2,3])
g=np.array([9,8,7],[6,5,4])
r=np.vstack([x,g])
print(r)
```
 24. What is the use of matplotlib and pyplot 2
 25. Given two arrays namely arr1 and arr2 each having 5 values. Create a scatter chart so that each data points gets a different color, different size. Keep the marker style as square 3
 26. Create an ndarray containing 16 values. Write the code and plot Cumulative histogram this array along with dataset 2

```
78 72 69 81 63 67 65 75
79 74 71 83 71 79 80 69
```
 27. Answer the following on the basis of table STUDENT. 5

No	Name	Stipend	Stream	AvgMark	Grade	Class
1	Karan	400.00	Medical	78.5	B	12B
2	Divakar	450.00	Commerce	89.2	A	11C
3	Divya	300.00	Commerce	68.6	C	12C
4	Arun	350.00	Humanities	73.1	B	12C
5	Sabina	500.00	Non-Medical	90.6	A	11A
6	John	400.00	Medical	75.4	B	12B
7	Robert	250.00	Humanities	64.4	C	11A
8	Rubina	450.00	Non-Medical	88.5	A	12A
9	Vikas	500.00	Non Medical	92.0	A	12A
10	Mohan	300.00	Commerce	67.5	C	12C

- i) To list the names of those students who are in class 12 sorted by stipend
 - ii) Select all the Non medical stream from STUDENT
 - iii) List all students sorted by Avgmark in descending order
 - iv) Display a report listing name, stipend, stream and amount of stipend received in a year assuming that the stipend is paid every month
- Write an output of the following:**
- v) `SELECT TRUNCATE(Avgmark,2) from student where avgmark=75;`

37. Customer name : 3
- Customer address :
- Order item number:

Create an html file namely order.html that displays this form and store it in the templates folder.

38. Write a python database connectivity script that deletes records from student table of database school that have name="stockable" 2