

Question Paper

Exam Date & Time: 11-Jan-2023 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal School of Information Sciences (MSIS), Manipal
Third Semester M.Sc.(Information Science) Degree Examination - January 2023

Principles of Data Visualization(Elective-2) [MIS 609.8]

Marks: 100

Duration: 180 mins.

Wednesday, January 11, 2023

Answer all the questions.

- 1) Write short notes on the following (10)
a) Web scrapping b) Web scrapping techniques
- 2) Why we use WEB SCRAPING TOOLS discuss briefly? Discuss the steps involved in Web scrapping? (10)
- 3) Explain Navigable Strings with a simple example using beautiful soup? (10)
- 4) Give regular expressions for the following? (10)
a) Write regular expression to denote all the signed integers.
b) All numbers divisible by 5.
c) A string that has a character from 0 to 9 before a % sign
d) A string that has not a letter from a to z or from A to Z
- 5) What can a bot do on a computer? Discus different types of bots on the Internet? (10)
- 6) Discuss in detail 4 basic Data Structures in Python? (10)
- 7) Consider the following in python (10)
a) Write out put of the following statement in python
In [15]: obj2 = pd.Series([4, 7, -5, 3], index=['d', 'b', 'a', 'c'])
In [16]: obj2
In [17]: obj2.index
In [18]: obj2['a']
In [19]: obj2['d'] = 6 In [20]: obj2[['c', 'a', 'd']]
b) Write python program to Create a create a Series from a data contained in a Python dict '{"Ohio": 35000, "Texas": 71000, "Oregon": 16000, "Utah": 5000}' and display the object created.
c) Write python program to Create a create a DataFrame from a dictionary of equal length NumPy array or a list and show the output of the frame created?

```
{ 'state': ['Ohio', 'Ohio', 'Ohio', 'Nevada', 'Nevada', 'Nevada'],  
  'year': [2000, 2001, 2002, 2001, 2002, 2003],  
  'pop': [1.5, 1.7, 3.6, 2.4, 2.9, 3.2]}
```


d) Write python program to Create DataFrame containing the data

```
(data, columns=['year', 'state', 'pop', 'debt'],  
 index=['one', 'two', 'three', 'four',  
        'five', 'six'])
```
- 8) Give a write up on "Mutable and immutable objects" and Python "datetime module" with appropriate example Python statements? (10)
- 9) With a suitable dataset and a code snippet (use seaborn) describe four types of plots used to analyze data? (10)

- 10) Write short notes on Data Aggregation and Group Operations? Explain at least three aggregation operations with appropriate example? (10)

-----End-----