NMAM INSTITUTE OF TECHNOLOGY, NITTE
(An Autonomous Institution affiliated to VTU, Belagavi)
Seventh Semester B.E. (CSE) (Credit System) Degree Examinations
November - December 2016

13CS704 – PYTHON PROGRAMMING

Duration: 3 Hours

Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from each Unit.*

			Marks	BT*
		Unit – I		
1.	a)	Explain the characteristics of the Python programming language. Give reason for the popularity of the language.	5	L*2
	b)	Assume a runner runs 14 kilometers in 45 minutes and 30 seconds. Write a program that displays the speed in miles per hour. (Note that 1 mile is 1.6 kilometers.)	5	L3
	c)	Write a program to determine whether the given year is a leap year or not.	5	L3
	d)	What is short circuit evaluation? Explain with an example.	5	L3
2.	a)	Assume that the variable data refers to the string "myprogram.exe". Write the values of the following expressions: (i) data[2] (ii) data[-1] (iii) len(data) (iv) data[0:8]	4	L3
	b)	Write a program that opens a file for input and prints the number of four letter words in the file.	6	L3
	c)	Write a code segment that prints the names of all of the items in the current working directory.	5	L3
	d)	Write a program to read data from a Comma Separated Value (CSV) file.	5	L3
		Unit – II		
3.	a)	Describe the common sequence operation with example.	8	L1
	b)	Explain any four type of basic list operation with example.	6	L2
	c)	Describe any three string method with example in python.	6	L1
4.	a)	Write a python program to convert a decimal integer to a string of bits.	10	L1
	b)	Explain the difference between dictionaries and lists.	5	L2
	c)	Explain the difference between tuples and lists. Describe the function tuple (seq) with example.	5	L2
		Unit – III		
5.	a)	What is Inheritance? With an example program explain the any 2 different types of inheritance that are supported by python.	11	L3
	b)	In which situations programmers can use the concept of Overriding explain with an example	5	L2
	c)	Write a recursive python program that prompts the user to enter an index and computes the Fibonacci number for that index.	4	L3
6.	a)	What are exceptions? Discuss the different techniques used to handle the exceptions in python.	8	L3

P.T.O.

b) Using Functions, write a python program to search a given key element from a given list of elements using Binary Search Technique. (Note: List of elements and key should be specified by the user.)   6   L3

c) Define constructor. With general syntax and example explain the significance of constructors.   4   L2

d) What is the value of **times** displayed?
```
def main():
    myCount = Count()
    times = 0
    for i in range(0, 100):
        increment(myCount, times)
    print("myCount.count =", myCount.count, "times=",times)

def increment(c, times):
    c.count += 1
    times += 1

class Count:
    def __init__(self):
        self.count = 0

main()
```
                                    2   L3

Unit – IV

7. a) With suitable code, demonstrate how dialog boxes are created in python?   10   L2
   b) Write a program to create a text box to enter the name and two radio buttons to select the gender. Display the name entered and gender on click of a push button.   10   L3

8. a) Write a program to create two threads to print odd and even numbers. Explain how synchronization can be achieved.   10   L3
   b) Explain the socket functions for client and server socket programs.   10   L2

Unit – V

9. a) Write a CGI script to illustrate POST method.   10   L3
   b) Explain with an example how to insert and delete data using python from mysql data base.   10   L3

10. a) Write a CGI Script for passing the text area data to the CGI program.   10   L3
    b) List and explain any five CGI enviornment variables.   10   L1

BT* Bloom's Taxonomy, L* Level

****

NMAM INSTITUTE OF TECHNOLOGY, NITTE
(An Autonomous Institution affiliated to VTU, Belagavi)

Seventh Semester B.E. (CSE) (Credit System) Degree Examinations
Make up Examinations – January 2018

14CS704 – PYTHON PROGRAMMING

Duration: 3 Hours   Max. Marks: 100

*Note: Answer **Five** full questions choosing **One** full question from **each Unit.***

			Marks	BT*
Unit – I				
1.	a)	What is short circuit evaluation? Explain with an example.	6	L*1
	b)	Explain any three data types in python with examples.	7	L4
	c)	Describe the file handling functions of python with an example each.	7	L2
2.	a)	Explain expressions and statements with example in python.	6	L4
	b)	Write a program to find the largest among three numbers using control statements.	8	L6
	c)	Describe OS and sys modules in python.	6	L2
Unit – II				
3.	a)	Describe any four methods used on a string in python.	8	L2
	b)	Describe map, filter and reduce in list with examples.	6	L2
	c)	What is a python Tuple? What are the advantages of tuple over list?	6	L1
4.	a)	Describe any three built in functions of tuples with examples.	6	L2
	b)	Explain the properties of Dictionary Keys with examples.	8	L4
	c)	Describe list slicing with examples.	6	L2
Unit – III				
5.	a)	Describe recursion function with example.	6	L2
	b)	Explain _ _init method and _ _str method with examples.	6	L4
	c)	Write a program to find the GCD of m and n using recursion.	8	L6
6.	a)	Write a program to find the factorial of n number using recursion.	8	L6
	b)	Describe briefly exception handling in python.	6	L2
	c)	Explain formal and actual arguments with examples.	6	L4
Unit – IV				
7.	a)	Write a program that allows the user to press a button to change a lable's text between "Hello" and "Goodbye".	10	L6
	b)	Describe multithreading in python. List any five thread classes in python.	10	L2
8.	a)	Define socket. Explain server socket and client socket methods in python.	10	L1
	b)	Design a program that receives two numbers from the text fields and calculates the sum and then displays it in a message box.	10	L6
Unit – V				
9.	a)	Describe connections objects methods in python DB API.	6	L2
	b)	Explain any five DB API constructors and special values.	6	L4
	c)	Describe any four cursor object methods.	8	L1
10.	a)	Explain python CGI programming with required example.	10	L2
	b)	Write a python CGI script to receive the two numbers as input from HTML form and display its sum.	10	L6

BT* Bloom's Taxonomy, L* Level

****

NMAM INSTITUTE OF TECHNOLOGY, NITTE
(An Autonomous Institution affiliated to VTU, Belagavi)
Seventh Semester B.E. (CSE) (Credit System) Degree Examinations
November - December 2017
14CS716 – MACHINE LEARNING

Duration: 3 Hours   Max. Marks: 100

Note: Answer Five full questions choosing One full question from each Unit.

			Marks	BT*
	Unit – I			
1.	a)	Define Machine Learning and explain the three types of Machine learning techniques.	10	L*2
	b)	Differentiate Overfitting and Underfitting.	06	L3
	c)	Write a note on learning curve.	04	L1
2.	a)	Explain the process of training and testing in machine learning with example.	10	L2
	b)	Give any two applications of supervised learning and unsupervised learning.	06	L3
	c)	Illustrate the importance of data in machine learning.	04	L4

Unit – II

3. a) Discuss the structure and training of neuron in Artificial Neural Network model. — 12 — L2

b) Design a Multiple regression model in terms of X(p-dimension), Y(1-dimension), β and ε. — 08 — L4

4. a) Compute the parameters β and Sum Squared Error (SSE) for the given dataset using multiple linear regression model.

X	10	5	7	19	11	8
Y	15	9	3	25	7	13

— 12 — L4

b) Consider the weights for ANN model given as below; derive the functionality of ANN model where the input (x1, x2) is a pair of binary values and output y can be either 0 or 1.

   i.   W=[-10, 20, 20]   ii. W=[-30, 20, 20]

— 08 — L5

Unit – III

5. a) Define the entropy measure and determine the attribute selection criteria at root node of decision tree using information gain for the dataset given below,

Day	Outlook	Temp	Humidity	Wind	PlayTennis
D1	Sunny	Hot	High	Weak	No
D2	Sunny	Hot	High	Strong	No
D3	Overcast	Hot	High	Weak	Yes
D4	Rain	Mild	High	Weak	Yes
D5	Rain	Cool	Normal	Weak	Yes
D6	Rain	Cool	Normal	Strong	No
D7	Overcast	Cool	Normal	Strong	Yes
D8	Sunny	Mild	High	Weak	No
D9	Sunny	Cool	Normal	Weak	Yes
D10	Rain	Mild	Normal	Weak	Yes
D11	Sunny	Mild	Normal	Strong	Yes
D12	Overcast	Mild	High	Strong	Yes
D13	Overcast	Hot	Normal	Weak	Yes
D14	Rain	Mild	High	Strong	No

— 12 — L5

b) Write a note on Hidden Markov Model. — 08 — L2

P.T.O.

6. a) Consider the above dataset in Question 5(a) and a new instance variable values,
   x'=(Outlook=*Sunny*, Temperature=*Cool*, Humidity=*High*, Wind=*Strong*)
   Determine the class label to which x' belongs to using Bayesian classifier.   12   L5

   b) Discuss the working of k-nearest neighbor model and the advantages/disadvantages of choosing a very large or small value for k.   08   L4

Unit – IV

7. a) Consider the set of five points A1(1,4), A2(1,2), A3(2,2), A4(5,7) and A5(3,5). Assume the initial cluster means as, A1 and A2. Apply k-means clustering algorithm to compute (k=2) clusters after two iterations.   12   L4

   b) Explain various methods of combining learners.   08   L2

8. a) Given a distance matrix, compute clusters using hierarchical clustering algorithm.

	A	B	C	D	E	F
A	0.00	0.71	5.66	3.61	4.24	3.20
B	0.71	0.00	4.95	2.92	3.54	2.50
C	5.66	4.95	0.00	2.24	1.41	2.50
D	3.61	2.92	2.24	0.00	1.00	0.50
E	4.24	3.54	1.41	1.41	0.00	1.12
F	3.20	2.50	2.50	0.50	1.12	0.00

          12   L4

   b) Discuss cross validation and re-sampling methods.   08   L2

Unit – V

9. a) Discuss the different aspects of temporal difference learning.   12   L2

   b) What is Reinforcement learning? Explain with a neat diagram.   08   L2

10. a) Explain the working of K-armed Bandit.   08   L3

    b) Discuss any of the *eight* elements of reinforcement learning with proper mathematical notations if any.   12   L2

BT* Bloom's Taxonomy, L* Level

****