VII Semester B.TECH– Internal Assessment II
Programming with Python

BTCS15F7530

Max Marks: 30 ***(to be scaled down to 15 for submission)*** **Duration: 90 minutes**

Note: Answer one full question from each section

Section- 1 (Unit-1) Marks

1.a Consider the street name as '100 NORTH BROAD ROAD'. Obtain the following output by using re.sub() function. 5
i) '100 NORTH BROAD RD.' ii)'100 NORTH BRD. RD.'

b Match and search are the functions used for searching a pattern. Apply match() and search() functions to search for a string in a regular expression also distinguish between match() and search() functions. 5

OR

2.a Email address consists of a set of characters. Write a regular expression pattern to match simple E-Mail Address. 5

b Design a regular expression pattern to search for the following phone number formats. 5
i. 800-555-1212 ext. 1234
ii. work 1-(800) 555.1212 #1234

Section-2 (Unit 2)

3 a Class is a user defined variable used for representing the data and operations that can be performed on data. Write a python code for 10
i) creating and instantiating a class
ii) Creating instance and class variables
iii)Using __init__ () and next() functions

b Write the python code for following 5
i) Generate Fibonacci numbers by considering iter() and next() functions.
ii) Apply product () and findall() functions on real world examples and write the output. 5

OR

4 a. Write the Python code to perform the following operations. 10
i. From the string '16 2-by-4s in rows of 8', retrieve only the numbers.
ii. List1=["REVA","UNIVERSITY"] from the List1, print all the unique characters.
iii. Apply combinations () operation to print all the combinations of 1,2,3,4 numbers by forming groups of 2 numbers each.
iv. characters = ('S', 'M', 'E', 'D', 'O', 'N', 'R', 'Y')
guess = ('1', '2', '0', '3', '4', '5', '6', '7')
Obtain the following output by considering "characters" and "guess" inputs..
[('S', '1'), ('M', '2'), ('E', '0'), ('D', '3'), ('O', '4'), ('N', '5'), ('R', '6'), ('Y', '7')]

b. Files are handled in the manner similar to "C". Illustrate the use of text files, binary files in python with suitable examples. 10

School of Computing and Information Technology

7th Semester B.TECH– Internal Assessment 2

Course Title: Machine Learning and Applications

Course Code: BTCS15F7100

Max Marks: 30 (to be scaled down to 15 for submission) **Duration: 90 minutes**

Note: Answer one full question from each section

Section- 1 (Unit-2) **Marks**

1.a Decision trees are used for supervised learning in classification. Apply ID3 Algorithm and construct a decision tree for the given problem. 10marks

Outlook	Temperature	Tribe	Attacks
Friendly	Weak	Celtic	No
Enemy	Weak	Celtic	No
Friendly	Strong	Norse	No
Enemy	Strong	Norse	Yes
Friendly	Weak	Greek	Yes
Enemy	Medium	Greek	Yes
Friendly	Strong	Greek	no

OR

2.a Enumerate the steps in K-nearest Neighbour classification Problem. Apply KNN-Classification Algorithm on following dataset and predict the class for X(P1=3 AND P2=7) 10marks

SL NO	P1	P2	CLASS
1	7	7	FALSE
2	7	4	FALSE
3	3	4	TRUE
4	1	4	TRUE

Section-2 (Unit-3)

3.a Suppose that the data mining task is to cluster the points (with (X,Y) representing location) into two clusters where the points are : A(1,1),B(2,1),C(4,3),D(5,4).Use appropriate distance metric to solve the given problem by applying K-Means algorithm. 10 marks

3.b Write an algorithm for basic agglomerative hierarchical clustering. Differentiate between Agglomerative and divisive clustering technique. 10 marks

OR

4.a Expectation-Maximization (EM) algorithm is used in maximum likelihood estimation where the problem involves two sets of random variables of which one, X, is observable and the other, Z, is hidden. Illustrate with an example Expectation maximization with hidden values. 10 marks

4.b Differentiate between classification and clustering. Write an algorithm for basic K-Means clustering. 10 marks