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15CS664

Sixth Semester B.E. Degree Examination, June/July 2019
Python Application Programming

Time: 3 hrs.

Max. Marks: 80

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1   a. List the features of Python Programming Language (at least FIVE). **(05 Marks)**
    b. What is the role of a programmer? List two skills required to be a programmer. **(05 Marks)**
    c. Explain the chained and nested conditional execution statements along with syntax and flow chart. **(06 Marks)**

OR

2   a. What are Python words and sentences? Explain with an example for each. **(04 Marks)**
    b. Differentiate compiler and interpreter. **(04 Marks)**
    c. Write python programs to i) Find largest of three numbers
       ii) Check whether the given year is leap year or not with functions. **(08 Marks)**

Module-2

3   a. With syntax, explain the finite and infinite looping constructs in python. What is the need for break and continue statements. **(08 Marks)**
    b. Write a Python program to generate and print prime numbers between 2 to 50. **(04 Marks)**
    c. What are String slices? Explain the slicing operator in Python with examples. **(04 Marks)**

OR

4   a. Write a Python program to count the number of occurrences of a given word in a file. **(06 Marks)**
    b. Write a Python function that takes decimal number as input and convert that to binary equivalent and return the same. **(04 Marks)**
    c. List any six methods associated with strings and explain each of them with an example. **(06 Marks)**

Module-3

5   a. What are the ways of traversing a list? Explain with an example for each. **(04 Marks)**
    b. Differentiate Pop and Remove methods on lists. How to delete more than one element from a list. **(06 Marks)**
    c. Write a Python program that accepts a sentences and build dictionary with LETTERS, DIGITS , UPPER CASE , LOWER CASE as key values and their count in the sentences as values. Ex : Sentence = "VTU@123.e-Learning"
       d = {"LETTERS" : 12, "DIGITS" : 3, "UPPER CASE" : 4 , "LOWER CASE" : 8}. **(06 Marks)**

OR

6   a. Compare and contrast lists and tuples. **(04 Marks)**
    b. Write a program to check the validity of a password read by users. The following criteria should be used to check the validity. Password should have atleast
       i)   One lower case letter   ii) One digit   iii) One upper case letter
       iv) One special character from [$ # @ !]   v) Six character.
       Your program should accept a Password and check the validity using above criteria and print "valid" or "invalid" as the case may be. **(08 Marks)**

c. Demonstrate i) how a dictionary items can be represented as a list of tuples.
   ii) How tuples can be used as keys in dictionaries? **(04 Marks)**

Module-4

7 a. What is a Class? How to define a class in Python? How to instantiate a class and how the class members are accessed? **(04 Marks)**

b. Differentiate class variables and instance variables. **(02 Marks)**

c. Write a Python program that uses datetime module within a class, takes a birthday as input and prints the age and the number of days , hours, minutes and seconds until the next birthday. **(10 Marks)**

OR

8 a. Write a program that has a class Point with attributes as X and Y co-ordinates. Create two objects of this class and find the midpoint of both the points. Add a method reflex_x to class point, which returns a new point. Which is the reflection of the point about the x – axis.

Ex : point (5, 10) ⇒ reflex_x returns point (5, -10). **(06 Marks)**

b. Differentiate between simple, multiple and multi – level inheritance. **(06 Marks)**

c. Write a program that has a class Person , Inherit a class Student from Person which also has a class MarksAttendance. Assume the attributes for Person class as : USN, Name, dob, gender. Attributes for Student class as : Class , branch , year , MA.
Attributes for MarksAttendance : Marks, Attandance.
Create a student S = Student ("1AB16CS005" , "XYZ", "18-1-90" , "M", 85 , 98) and display the details of the student. **(04 Marks)**

Module-5

9 a. Demonstrate with the help of Python construct i) how to retrieve an image over HTTP.
   ii) how to retrieve web pages with urllib. **(08 Marks)**

b. Compare and contrast the JavaScript object Notation (JSON) and XML. **(04 Marks)**

c. What is Service – Oriented Architecture? List the advantages of the same. **(04 Marks)**

OR

10 a. Write a Python program that retrieve an user's Twitter friends , Parse the returned JSON and extract some of the information about the friends. **(08 Marks)**

b. Create a simple spidering program that will go through Twitter accounts and build a database of them. **(08 Marks)**

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