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18EC646

Sixth Semester B.E. Degree Examination, June/July 2023
Python Application Programming

Time: 3 hrs.

Max. Marks: 100

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

Module-1

1 a. Explain the concept of type conversion functions and math functions in python with examples. **(10 Marks)**

b. Write a program which prompts the user for a Celsius temperature, convert the temperature to Fahrenheit, and print out the converted temperature. **(05 Marks)**

c. List any five features of python programming language. **(05 Marks)**

OR

2 a. List and give syntax of all python supported conditional statements. Write a python program to check whether given number is positive or negative or zero. **(10 Marks)**

b. Explain the rules of precedence used by python to evaluate an expression. **(05 Marks)**

c. Write a program to prompt for a score between 0.0 and 1.0. If the score is out of range, print an error message. If the score is between 0.0 and 1.0, print a grade using the following table:

Score	>= 0.9	>= 0.8	>= 0.7	>= 0.6	< 0.6
Grade	A	B	C	D	F

(05 Marks)

Module-2

3 a. Write a python code which repeatedly reads numbers until the user enters "done". Once "done" is entered, print out the total, count, and average of the numbers. If the user enters anything other than a number, detect their mistakes using try and except and print an error message and skip to the next number. **(10 Marks)**

b. List and explain with example any five built in string manipulation functions supported by python. **(10 Marks)**

OR

4 a. Define a string. How it can be traversal through using looping statement? **(06 Marks)**

b. Explain file open, file close, file read and file write concepts in python with examples. **(08 Marks)**

c. Write a program to read through a file and print the contents of the file (line by line) all in upper case. **(06 Marks)**

Module-3

5 a. What is dictionary? Write a python program that accepts a sentence and build dictionary with LETTER, DIGIT, UPPER CASE, LOWER CASE as key value and their count in the sentences as values.
Example: Sentence = 'VTU@123.e-Learning'
d = {"LETTER" : 12, "DIGITS" : 3, "UPPER CASE" : 4, "LOWER CASE" :8} **(10 Marks)**

b. Compare and contrast tuples with lists. Explain the following operations in tuples:
   (i) Sum of two tuples
   (ii) Slicing operators
   (iii) Comparison of two tuples
   (iv) Assignments to variables (10 Marks)

OR

6 a. Describe any two list operations and list methods. Write a python program to accept 'n' numbers from user, find sum of all even numbers and product of all odd numbers in entered list. (10 Marks)

b. Illustrate the use of regular expressions for:
   (i) Extracting data
   (ii) Character matching
   (iii) Combining searching and extracting (10 Marks)

Module-4

7 a. What is class? How to define a class in python? (05 Marks)

b. Write a definition for a class named circle with attributes center and radius, where center is a point object and radius is a number. Instantiate a circle object that represents a circle with its center at (150, 100) and radius 75. Write a function named point_in_circle that takes a circle and a point and returns True if the point lies in or on the boundary of the circle. (10 Marks)

c. Distinguish between pure functions and modifiers with example. (05 Marks)

OR

8 a. Illustrate how _init_ method is invoked when an object is initiated. (05 Marks)

b. What does the keyword self in python mean? Explain with example. (05 Marks)

c. What is operator overloading and type-based dispatch? Write a python code to add or increment the time based on the type of second parameter. If the second parameter is time then perform addition. If it is integer then perform increment operation. (10 Marks)

Module-5

9 a. What is socket? Explain how socket connection can be established to the internet using python code over the TCP/IP connection and the http protocol to get the web content. (08 Marks)

b. Write a note on XML. Write a python program to retrieve a node present in XML. (08 Marks)

c. What is service-oriented architecture? List the advantages of the same. (04 Marks)

OR

10 a. Brief on structured query language, with suitable python program explain functions involved in creation of database table in python. (08 Marks)

b. Demonstrate with the python program:
   (i) How to retrieve an image over HTTP?
   (ii) How to retrieve web pages with Urllib? (08 Marks)

c. Compare and contrast the Java Script object notation and extensible markup language (JSON and XML). (04 Marks)

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