Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

IV SEMESTER B.TECH. (COMPUTER AND COMMUNICATION ENGINEERING) MAKEUP EXAMINATIONS, JUNE 2017

SUBJECT: ADVANCED PROGRAMMING TECHNOLOGIES [ICT 2252]

REVISED CREDIT SYSTEM
(14/06/2017)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer ALL questions.
- Missing data may be suitable assumed.

1A. Let a Python list of length 'n' hold values of various kinds. Write a python program to do the following:

i. Find and display the sum of all numeric values stored in the list.
ii. Display the datatype of each list item.
iii. Copy only numeric values of original list into a list named NumericL and sort NumericL's content based on number of digits in list's numeric value.
iv. Create a deep copy of the original list.
v. Remove all the duplicate elements in the original list without using in-built functions and methods. **5**

1B. List and explain the Ruby data types. Also write the syntax for defining each of them. **3**

1C. Explain the Python's dir() function along with a suitable example. What is the output of print(globals()) python statement before creating any variable or function. **2**

2A. Write a program that reads a five-letter word from the user and produces all possible three letter words that can be derived from the letters of the five-letter word. For example, the three-letter words produced from the word "bathe" include the commonly used words "ate," "bat," "bet," "tab,", "hat," "the" and "tea.". **5**

2B. What is the output of the following code?

```
matrix ={(0,0) : 3, (0,2) : -2, (0,3) : 5, (1,1) :-9, (3,3) : 15}
for r in range(0,4):
    for c in range(0,4):
        e=matrix.get((r,c),0)
        print e
```

3

2C. Differentiate between mutable and immutable data types. List any four Python datatypes of each kind. **2**

3A. Write a Python program which reads a sentence from user and does the followings :-

i. Print the words after removing all duplicate words and sort them alphanumerically.

ii. Calculate the number of letters and digits.

iii. Construct a dictionary D1 such that dictionary keys are vowels and value is number of times vowel is appearing in the sentence. 5

3B. Write a generator function generate natural numbers up to n. 3

3C. Write an anonymous function to compute the square of a number. 2

4A. Write a Python program to read a string from user and perform the following operations:

i. Place the alternate words into a new string named "alt". For example, if the input is "This is an example" then the output is "is example"

ii. Reverse each word in a string. For example, if the input is "This is an example" then the output is "sihT si na elpmaxe".

iii. Display all the palindrome words present in the input string.

iv. Copy only the words starting with vowel to a new string named vowel. For example if the input is "This is an example" then output string is "is an example".

v. Each words in the input string should be repeated and stored in a string named "repeat". For example if the input is "This is an example" then output string is "ThisThis isis anan exampleexample" 5

4B. Write the output of the following Python code:

```
a,*b,c,D="a",set([1,2,4,5,3,4,5]),{1:'a',2:'b',3:'c',4:'d'},(11,22,33,44),5+6j,True,45.7565
print('a=',a);print('b=',b);print('c=',c)
D={1:'a',2:'b',3:'c',4:'d'}
D.update({3:'CC',4:'DD',5:'EE'})
print(D)
l=[(i,j) for i in range(0,5) for j in range(0,5) if i<j>3]
d={i:i**3 for i in range(0,5)}
print(l,'  ',d)
```

3

4C. What are scripting languages? How they are different from other type of languages? 2

5A. Create Ruby class named Account with instance variables acc_no, accHolderName, balance. Account class should support following operations: (a) Constructor (b) Deposit money (c) Withdraw money (d) Check balance (e) Display details. Create a menu-driven program in Ruby to manage a bank account. Read the required details from user. 5

5B. What type of values can be stored in a Python set? What is the necessity of using frozenset and how it is different from set?List the datatypes which could become a set member. 3

5C. List and explain the various types of variables supported by any Ruby class. 2