Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

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A Constituent Institution of Manipal University

IV SEMESTER B.TECH. OPEN ELECTIVE
END SEMESTER EXAMINATIONS, APRIL/MAY 2017
SUBJECT: PYTHON PROGRAMMING (CSE 3292)
REVISED CREDIT SYSTEM
(02/05/2017)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitably assumed. You may draw pictorial representations and algorithms to justify your code.

1A. With a neat flow-chart explain while loop consisting of else, break and continue. Illustrate the while loop for the following program by drawing the flow-chart and the output.

```
x = 10
while x <= 100:
    if x == 30:
        break
    print (x)
    x = x + 10
else:
    print ("The condition became false!")
```

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1B. Assume that we execute the following assignment statements:

```
width = 17
height = 12.0
delimiter = '.'
```

For each of the following expressions, write the value of the expression and the type (of the value of the expression).

i. width/2
ii. width/2.0
iii. height/3
iv. delimiter * 3
v. 1+2*5+3+4*2*3 Show the resulting expression using parenthesis to show the order of operations

3

1C. Distinguish between an interactive mode and a script mode by taking a single line code which can run in an interactive mode but requires transformation to get the same result in a script mode.

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2A. Write a Python program for the following using for loops:

i) Make a list of numbers between 200 and 220 (both included) where each digit of the given number is an even number and display the list.
ii) Write a recursive function named factorial that takes number as its argument to compute the factorial of a given number. Use main function to compute factorial of numbers upto 10 using for loop.

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2B. Write a fib function that returns a list of the numbers of the Fibonacci series upto n in a list named as Result using while loop. Show how fib function can be called in a main program to display the list of Fibonacci numbers upto 100. 3

2C. Write a Python program to display the first and last element from a given list containing arbitrary elements whose size is unknown without using any looping constructs. Assume that the list is not a nested list. 2

3A. Write a Python program to create a dictionary containing (name, marks) pair.
   i) Write a function copy that takes a dictionary as an input and returns the list of tuples by using for loop where each tuple is a key-value pair.
   ii) Illustrate the same operation using built-in function without using for loop.
Comment on the ordering of list elements in both cases. 4

3B. Write a Python program which accepts a sequence of numbers from the user and generates a list using for loop. Show how this list can be transformed into a tuple without using any looping constructs. Write a complete program that implements the above and prints the contents of entire list and the tuple separately without using any looping constructs. 3

3C. Distinguish between a list and a dictionary in terms of the following with an example for each:
   i) Ordering of elements ii) Indexing iii) Assignment statement 3

4A. What are the two ways to support persistent storage? Distinguish between them in terms of volume of the data. Write a complete menu driven program in a function "printToConsole" which shows 2 options to the user – add and exit. The add() function creates a database "citizen" with table "person" having PersonId, firstName and LastName as its fields. The exit() option allows to terminate. Show, the complete program which demonstrates invoking of the respective functions including import options. 4

4B. Write a program using file to do the following:
   i) Open a new file named "sample" to add 5 sentences to the file.
   ii) Using while loop, display the line by line content from the file and the count of total number of lines.
   iii) Using for loop, display the line by line content from the file. Also print the count of total number of lines 4

4C. With examples, show how can you initialize new Numpy array from the following
   i) A 2-dimensional list t of size 3*3
   ii) Using built-in function to initialize an array of size 3*5 2

5A. Create a GUI using frames to realize a window with following features: On the top at the center, there should be a display "Welcome to Python" and on the middle at the right side, the display should be "Welcome to GUI" and on bottom left, the display should be "Welcome to Frame". Attach an entry field with caption "Input" on the main window, whose purpose is to get an arithmetic expression from the user. When user hits the Return key, the result of the expression must be displayed on the screen. Finally a button must be placed on the bottom-most end with label "Quit" whose font color should be red and the button color should be black which must be placed on a green frame. On clicking, the Quit button, the application must quit. Note that no parameters have to be mentioned for the pack() command on any of the label widgets. 5

5B. What actions take place when a hyper link is clicked to browse a particular web page? What are CGI scripts and how do they function? 2

5C. Explain the purpose of a full stack web framework? What are the main goals for existence of Django framework ? Distinguish between a Django project and a Django app? 3