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# MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL  
(A constituent unit of MAHE, Manipal)

**IV SEMESTER B.TECH. OPEN ELECTIVE**  
**END SEMESTER EXAMINATIONS, APRIL/MAY 2019**  
**SUBJECT: PYTHON PROGRAMMING (CSE 3292)**  
**REVISED CREDIT SYSTEM**  
**(07/05/2019)**

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. Write a Python program that continuously prompts the user to input a series of even integers whose sum has to be calculated. If the user enters an odd number, the program should indicate an error, ignore that input, and continue with the process. If the special character “.” is entered, the program will print the final sum and end. 4
- 1B. With a flowchart explain the functioning of “while” loop that uses “else” with both “break” and “continue”. Is it possible to skip “else” part? Give an example program for which “else” part is skipped during execution. 4
- 1C. Discuss the following division operators in Python with an example for each: 2
  - i) The division operator which yields float result regardless of the types of the operands
  - ii) The division operator which yields integer result
- 2A. Write a Python function called *findFactors* that takes a single integer as an argument and returns a list of all its factors, including 1 and itself. By making use of the function, the program should compute factors from 1 to  $n$  numbers where  $n$  is input from the user. 4
- 2B. Discuss three sequence data types in Python bringing about their common features. 3
- 2C. Explain *join* as a string method. Given a list  $L = [1, 2, 3, 4]$ , convert the list to the string '1234' and integer 1234 by making use of “join” method. 3
- 3A. Using *linecount* function that takes filename as argument and returns the count of lines in the given file, explain how function and their call/invoke are different from import. Also bring about the advantages of importing over functions. 5
- 3B. Distinguish between lists and tuples. Given  $x = [1, 2, 3]$ , write Python code to: 3
  - (i) Create a list  $y1$  such that changing  $x$  also changes  $y1$ .
  - (ii) Create a list  $y2$  such that changing  $x$  does not change  $y2$ .

- 3C. Why is it important for a key of a dictionary to be immutable, even though the dictionary itself is mutable? 2
- 4A. Write a Python program which will count the occurrences of a letter specified by the user in a file containing multiple lines of text where each line holds multiple words. For counting, built-in functions are not allowed. 4
- 4B. Check whether a given string is palindrome without using any built in functions. 3
- 4C. Write the output of the following code 3  
`x = np.arange(28).reshape(4,7)`  
 i) `print(x)`  
 ii) `print(x[:2, :3])`  
 iii) `print (x[:, :3])`  
 iv) `print (x[3:, :])`  
 v) `print(x[:,4:])`
- 5A. 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
- 5B. Construct a GUI application to take student name and branch from the user. Include two buttons, “Quit” and “Print” and implement the respective functionalities. Make use of only grid manager in your code and provide precise layout. Also bind functionality to the “Print” button in such way that student name and branch should be displayed with its corresponding values that are entered from the user. Discuss the advantages of grid geometry manager over pack manager in this layout. 4
- 5C. With a neat diagram, explain how CGI program runs. What are the disadvantages of CGI ? 2