Indian Institute of Technology Kharagpur

AUTUMN Semester, 2015
COMPUTER SCIENCE AND ENGINEERING

CS19001: Programming and Data Structure Laboratory

Assignment – 9

Full Marks: 10

Time allowed: 3 hours

INSTRUCTIONS: Please see the questions and write C programs step by step. Ensure proper indentations to improve the readability of your code. All these features are necessary and absence will lead to deduction of marks.
Please do not forget to upload files to *Moodle* before you leave.

Structures in C

1. Write a complete C program with a recursive function `void print_binary (int n)` to print the binary equivalent of a decimal number entered by the user. Do not use any array. (3 marks)

2. Write a complete C program with a recursive function `unsigned int sum_of_digits (unsigned int n)` to recursively calculate the sum of the digits of a non-negative integer entered by the user. Thus, if the number input is 678, its transformation is as follows: $678 \rightarrow 21 \rightarrow 3$. In this case, the program needs to calculate and print the final value (i.e. 3) using the above-mentioned recursive function. Your program need not print the intermediate values during the transformation. (4 marks)

3. Write a complete C program with a recursive function `void print_reverse (char *s)` to print a string input by the user in reverse. Do not use any extra array. (3 marks)
