University of Engineering & Management, Kolkata

Odd Semester Examination, February, 2021

Course: B. Tech Semester: 1st

Paper Name: Computer Programming and Problem Solving using Python and C - I

Paper Code: ESC181

Full Marks: 100 **Time: 3 Hours**

Instructions:

1. Students need to answer all questions of the allotted Set.
2. The answers should be written in white papers (preferably A4, but not mandatory).
3. The First page of the answer script must have Students Name, Section, Class Roll, Enrolment Number and Registration Number written at the top.
4. Subsequent pages must have Section and Roll Number written at the top.
5. The entire answer script is needed to be scanned and a single PDF file should be submitted.
6. The file name should be "Section_Roll.pdf" (e.g. A_100.pdf)

Set - 4

1. Write a C program to count the number of vowels in a user given sentence. The maximum length of the sentence is given by user. Also assume that the sentence may contain both uppercase and lowercase letters.
2. Write the function definition of the following function declaration in C programming language. Use this function to calculate the Binomial Coefficients $\binom{n}{r} = \frac{n!}{r!(n-r)!}$ For any user given value of n and r.

   int ncr(int n, int r);
3. Write a C program to declare a one-dimensional integer array of size 'n' where 'n' is user given. Read user given numbers to store in the array. Now read another number from the user and count the number of occurrences of that number in the array.
4. Write a C program to generate Fibonacci sequence up to n^{th} term. The Fibonacci sequence is as follows: 0, 1, 1, 2, 3, 5, 8….