**Indian Institute of Information Technology Sri City, Chittoor** (An Institute of National Importance under An Act of Parliament) 

Name: **DSA Lab** Duration: **3Hrs**

INSTRUCTIONS:

1. Please carefully read all questions and there is no choice in PART-B.

2. Submit single .c file for the Part-B 3 assignment problems (by using comments).

a. Name the file as follows: S2020xxxxx\_A1.c for the solution for problems.

3. Do NOT zip. Just attach single .c file directly to your submission in common Google classroom.

**Not following instructions leads to heavy penalty**

PROBLEM INSTRUCTIONS:

1. For all problems write the solution as a function. You shall call the function from main.

-------------------------------------------------------------------------------------------------------

**PART-A**

**1).** Write a program to compute the sum of the square of digits in the decimal representation of a non-negative integer. For example, the sum of the square of digits for 1024 is 12+02+22+42 = 21.

2.) C program to print a given number in words.

**Example:**

**Input**: 12340

**Output:** One Two Three Four Zero.

**PART-B**

1. Write a C program to print Strong numbers between 1 to n using recursion.

Hint: Strong number is a special number whose sum of factorial of digits is equal to the original number. For example: 145 is strong number. Since, 1! + 4! + 5! = 145

1. Create array of student structures with roll number, name and marks of three subjects and perform the following operations:
   1. Find the mean marks of the students from three subjects.
   2. Search the students based the roll number and display the results.
2. Write a program to read the 5 X 5 grey scale image [0-255] as a matrix and quantize (scale) the intensity of the image to [0-8] grey levels, compute and display the mean, max and minimum intensity of the quantized image.