RAMAIAH INSTITUTE OF TECHNOLOGY
(Autonomous Institute, Affiliated to VTU)

DEPARTMENT OF E & C

Term: 07-09-2020 – 31-12-2020 **Course:** B. E **Course Code:** ECOE02 **CIE:** Test 1

Semester: V **Sec:** - **Date:** 20-10-2020 **Time**: 10.30 to 11.30am **Duration:** 1 Hr

Portions for Test: Unit I **Instructions to Candidates: Answer any two full questions** **Max Marks:** 30

Sl. No.	Questions	Marks	Bloom's Level	COs	POs
1.	(a) Describe the basic steps in a digital image processing pipeline with a block diagram.	7	L2	CO1	1, 2, 3, 4, 5
	(b) Write Python code for (i) log transformation and transformation function (ii) Gamma transformation and transformation function	8	L3		
2.	(a) Show that the following operations are linear or non-linear. (i) Image subtraction (ii) Image multiplication	7	L2	CO1	1, 2, 3, 4, 5
	(b) Write Python code for (i) Median and Mean filtering (ii) Laplacian filtering	8	L3		
3.	(a) High-definition television (HDTV) generates images with 1125 horizontal TV lines interlaced (i.e., where every other line is "painted" on the screen in each of two fields, each field being 1/60th of a second in duration). The width-to-height aspect ratio of the images is 16:9. Each pixel in the color image has 24 bits of intensity, 8 bits each for a red, a green, and a blue component image. How much storage is required to store the images extracted from a two-hour HDTV movie?	7	L2	CO1	1, 2, 3, 4, 5
	(b) Write Python codes for the following: (i) Image cropping (ii) Adding salt and pepper noise to an image (iii) Histogram of an image	8	L3		