

2018ICSE0621

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Part-B

2.2 Linear Functions:

1) Identity function:

- Output intensities are identical to input intensities.
- This function does not have an effect on image. It provides completeness.

• Expression: $S = R$

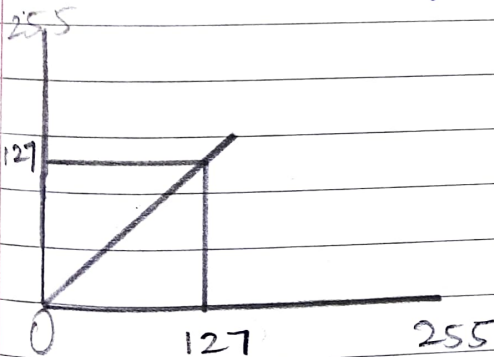
2) Negative Transformation:

- The negative of an image with gray level in the range $[0, L-1]$ where L is largest value in an image is obtained by

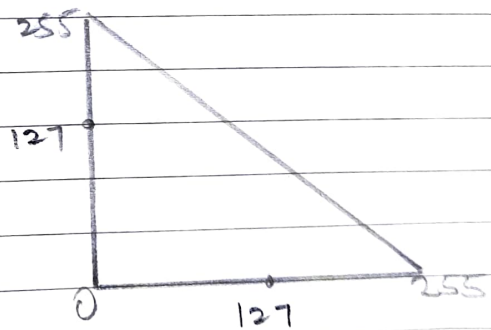
$$S = L - 1 - R.$$

which reverses the intensities of an input image.

- Suited for enhancing white or gray detail embedded in dark regions of an image.



a) Linear Transformation



b) Negative Transformation

Logarithmic functions

1) Log Transformation:

It is given by $S = c \log(1 + R)$

where c is constant & $c \geq 0$.

- It maps a narrow range of low gray levels to a wider range of output levels.
- It compresses the dynamic range of images with

large variations in pixel values.

- Used to expand the values of dark pixels.

② Inverse logarithm Transformation:

- It performs opposite of log transform.
- Used to expand values of high pixels in image while compressing the darker level values.