Ans to Q. 9

CNN (Convolutional Neural Network) is a type of artificial neural network used in image recognition and processing that is specifically designed to process pixel data. CNN uses a system much like a multilayer perceptron that has been designed for reduced processing requirements.

In CNN the parameters share with each other. To reiterate parameter sharing occurs when a feature map is generated from the result of the convolution between a filter and input data from a unit within a plane in the conv layer. All units within this layer plane share the same weights. This helps to reduce the number of parameters in the whole system and makes the computation more efficient.

Convolutional Network filters design:

we will be using 0 for detect light and 1 for dark

$W_1 =$

-1	0	1
-1	0	1
-1	0	1

$W_2 =$

1	0	-1
1	0	-1
1	0	-1