Quiz :- 3

Q-Ans- Given, image to be convoluted = 256 X 256
filter size used = 8 X 8 (6)
stride = 2.
max pool = 2 X 2.

input
$\downarrow$ 6 X 256 X 256
$\downarrow$
Convulation
$\downarrow$ 6 X 125 X 125
$\downarrow$
max pooling
$\downarrow$ 6 X 62 X 62
$\downarrow$
Convulation
$\downarrow$ 6 X 28 X 28
$\downarrow$
max pooling
$\downarrow$ 6 X 14 X 14
$\downarrow$
Convulation
$\downarrow$ 6 X 4 X 4
$\downarrow$
max pooling $\longrightarrow$ 6 X 2 X 2

Flattening
(6 X 2 X 2)
= 24
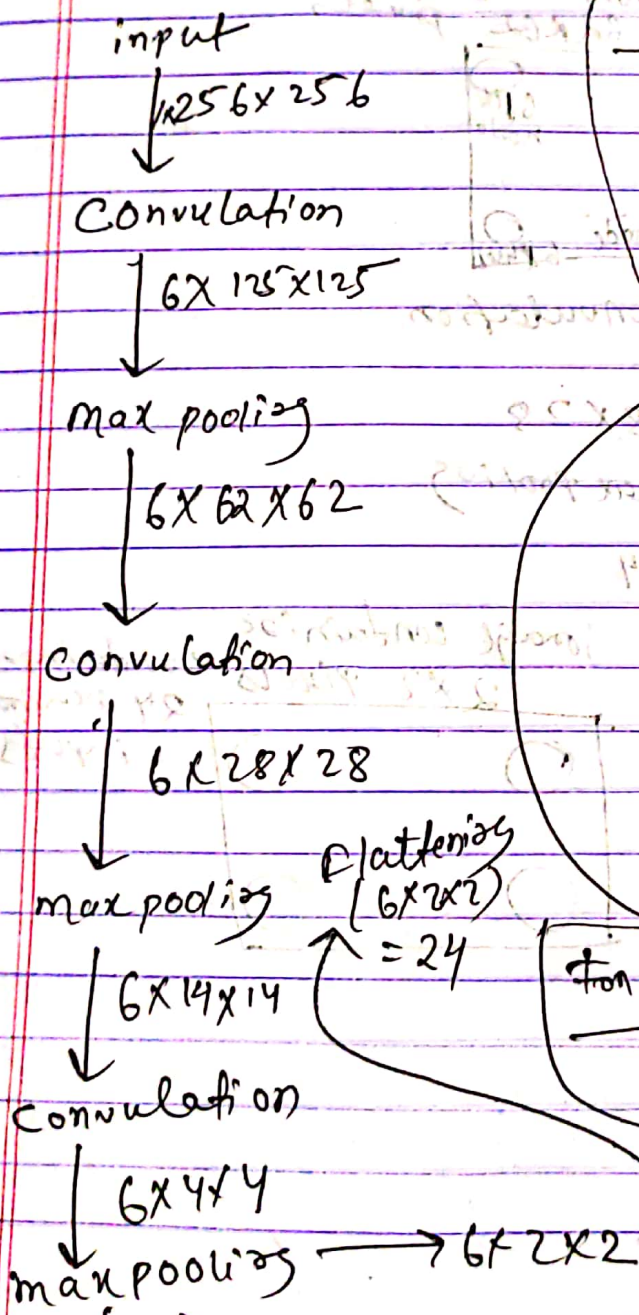
For model - 1   Filter = 6 X 8 X 8

Dimension of tensor
$$= [(W + 2P - F)/s] + 1 \quad \text{max pooling}$$
$$= \frac{256 + 0 - 8}{2} + 1$$
$$= 125 \quad \longrightarrow 6 \times 125 \times 125 = 125/2 = 62.5 \approx 62$$

For model - 2   6 X
                            filter = 8 X 8

Dimension of tensor
$$= [(W + 2P - F)/s] + 1$$
$$= [(62 + 0 - 8)/2] + 1$$
$$= 28 \quad = 6 \times 28 \times 28$$

max pooling $= 28/2$
$$= 14 \quad 6 \times 14 \times 14$$

For model - 3   filter = 6 8 X 8

Dimension of tensor
$$= (14 + 0 - 8)/2 + 1)$$
$$= 4 \quad = 6 \times 4 \times 4.$$

∞ After max
pool 3 = 4/2
$$= 2$$
$$= 6 \times 2 \times 2.$$

Final Image

input

$\downarrow$ 1X256X256

Convulation

$\downarrow$ 6X125X125

max pooling

$\llcorner$ 6X62X62 $\longrightarrow$

image containing
62X62 pixels

0th node   61st node

62th node   63th pixel

$\downarrow$ convulation.

6X28X28
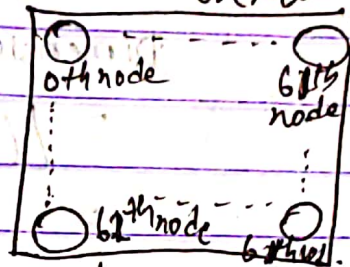
$\downarrow$ max pooling

6X14X14

image containing
14X14 containing
1176 parameters
inputs.

0th node   13th node

13th node   13th node

$\downarrow$ 6X4X4

convulation

$\downarrow$ maxpooling

6X2X2
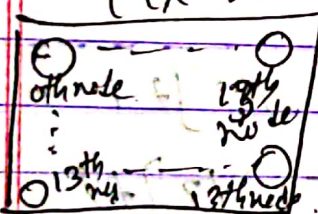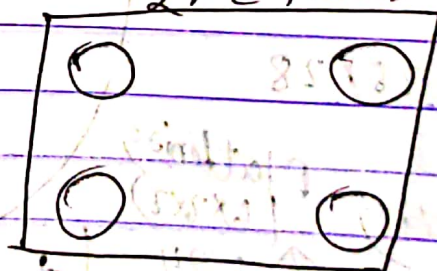
image containing
2X2 pixels containing
27 parameters
inputs.

Flattering

0th node ◯

1th node ◯

2nd node ◯

3rd node ◯

4th node ◯

5th node ◯