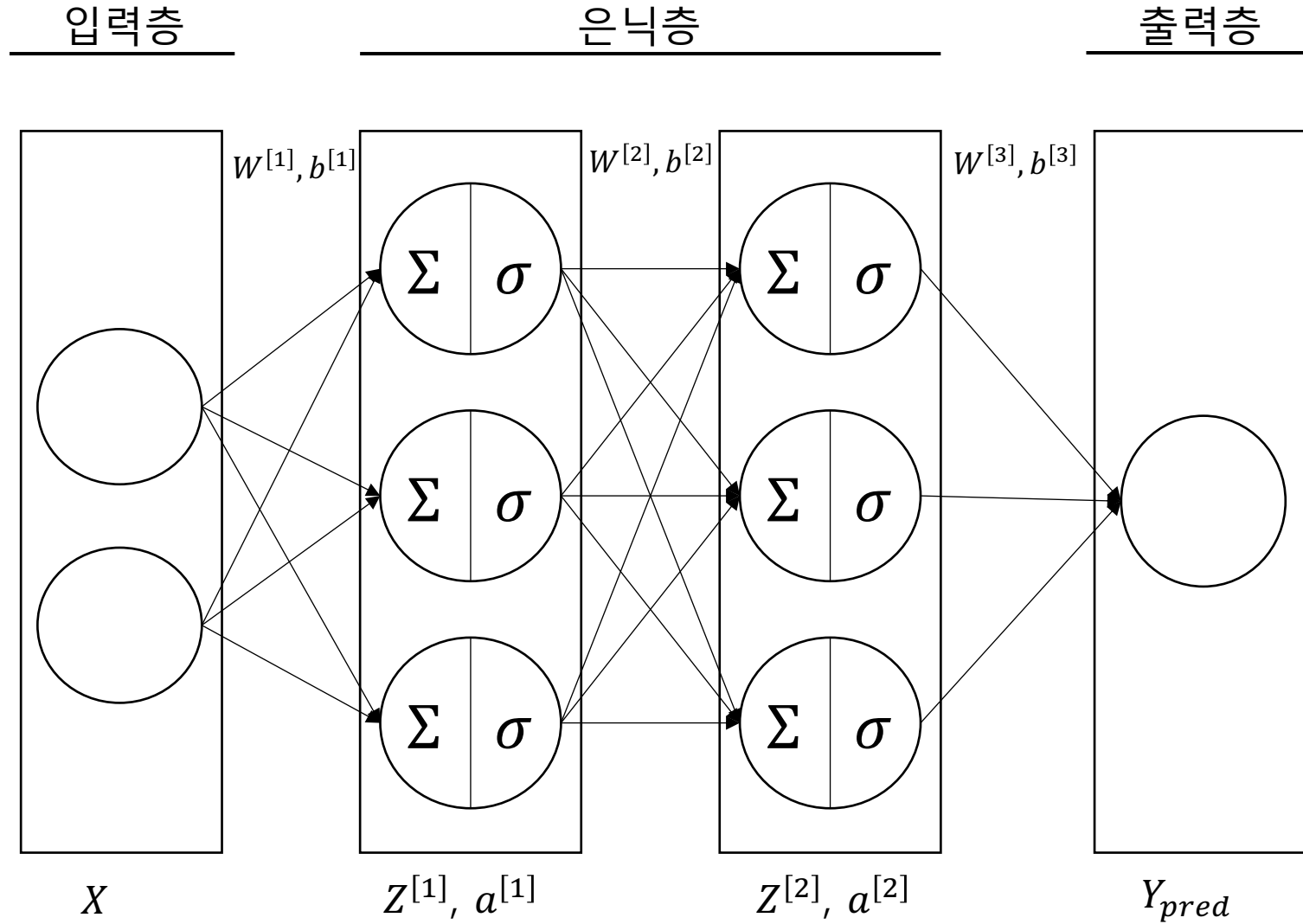
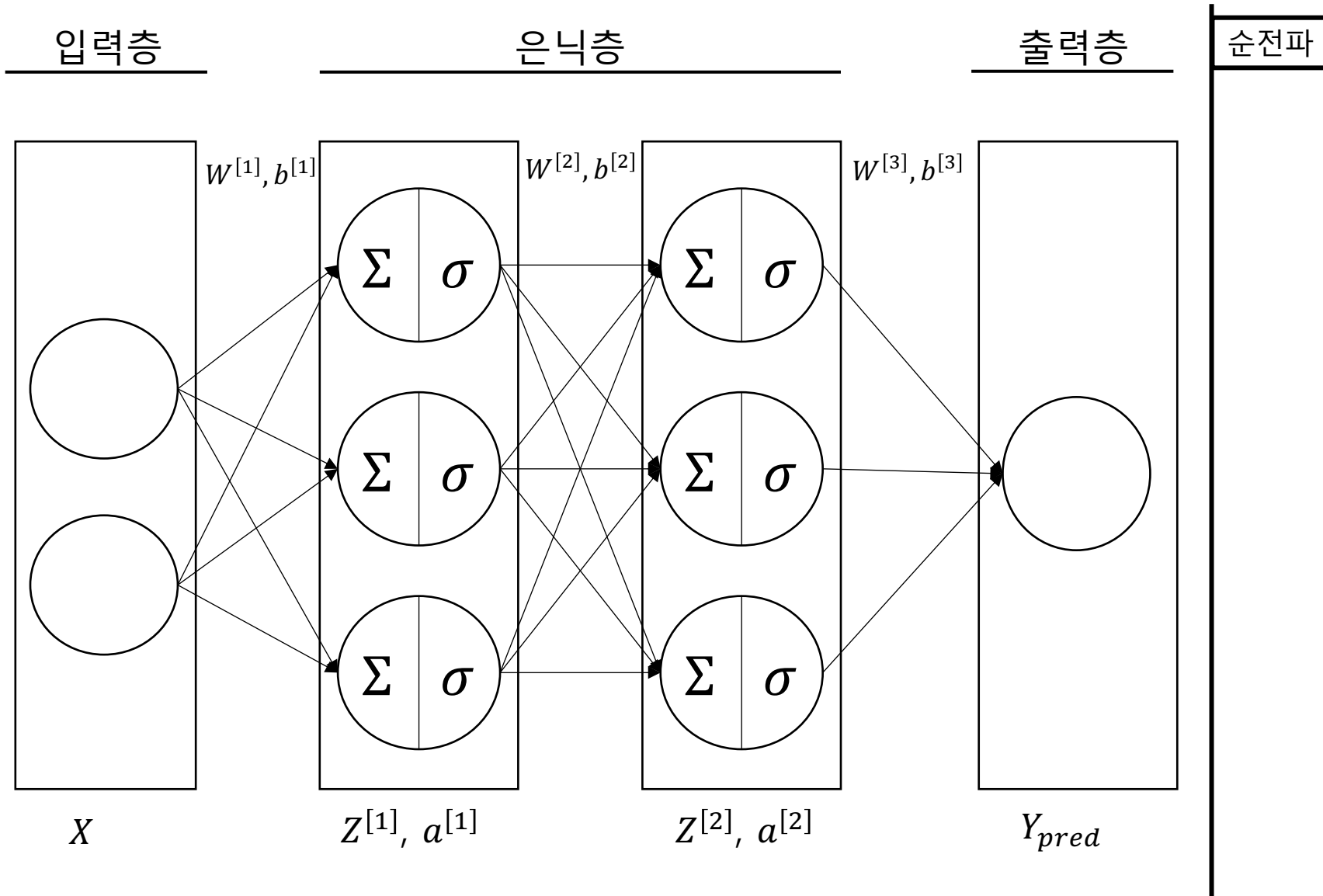


순전파 <Feed Forward>

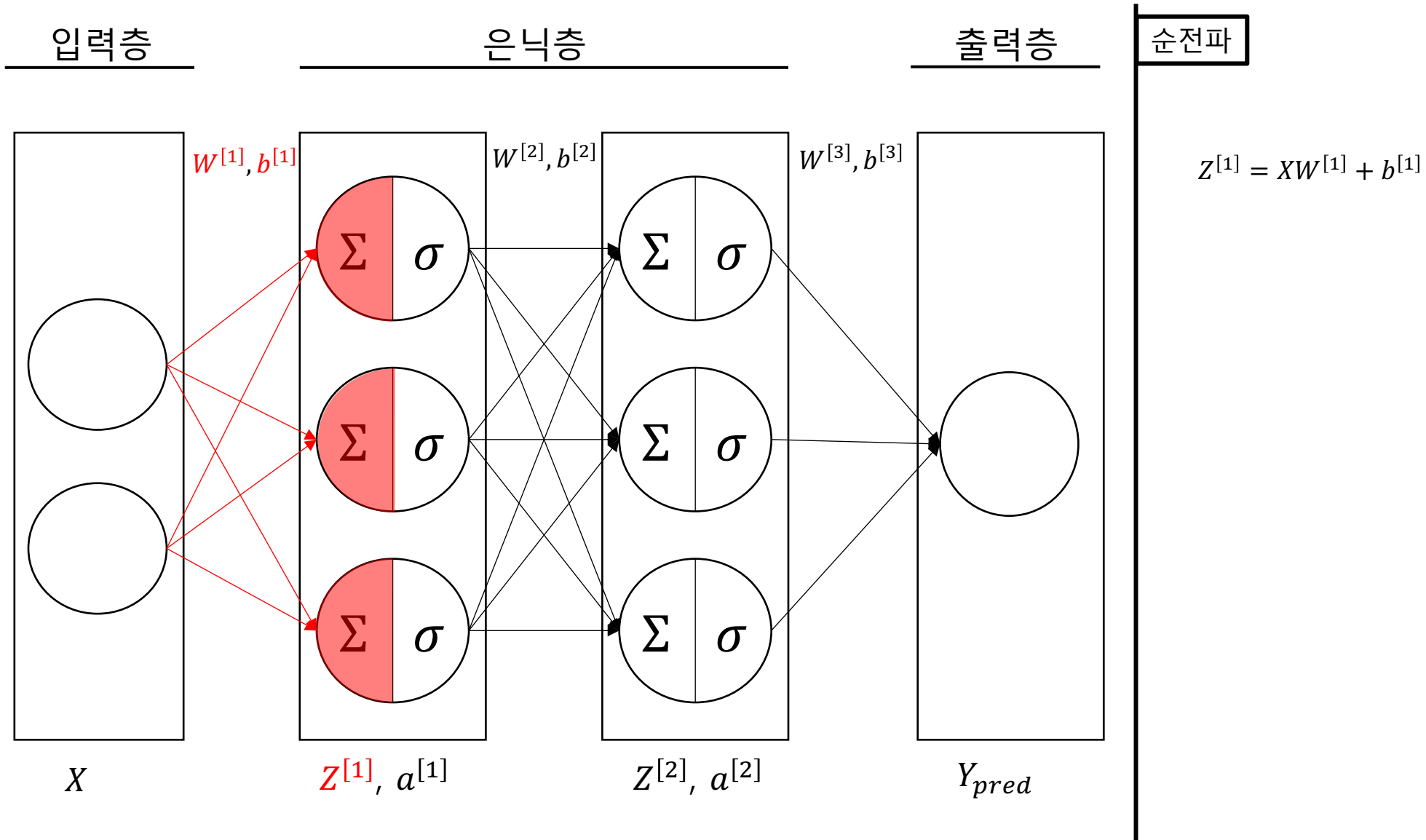
3층 신경망



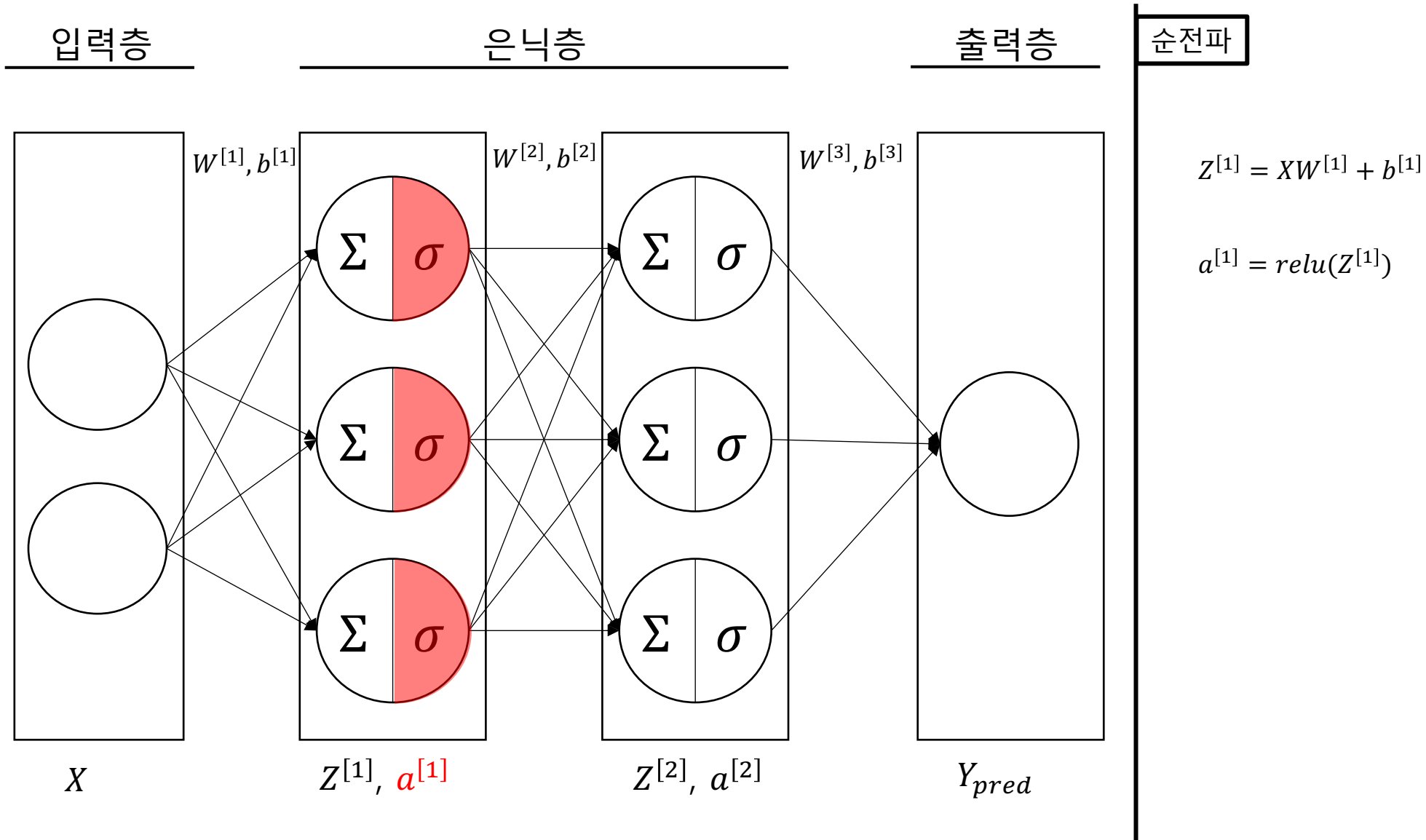
3층 신경망에서의 순전파



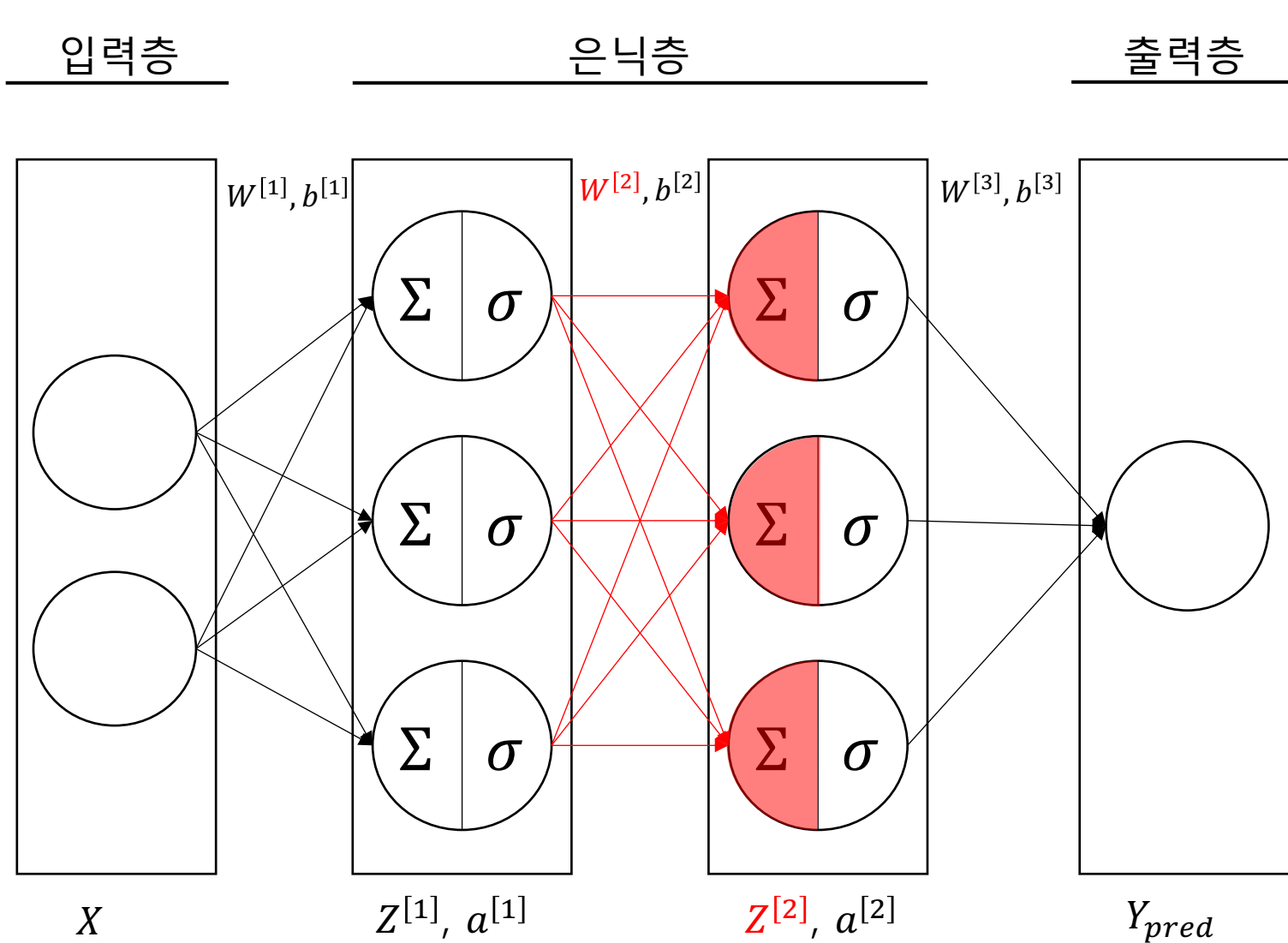
3층 신경망에서의 순전파



3층 신경망에서의 순전파



3층 신경망에서의 순전파

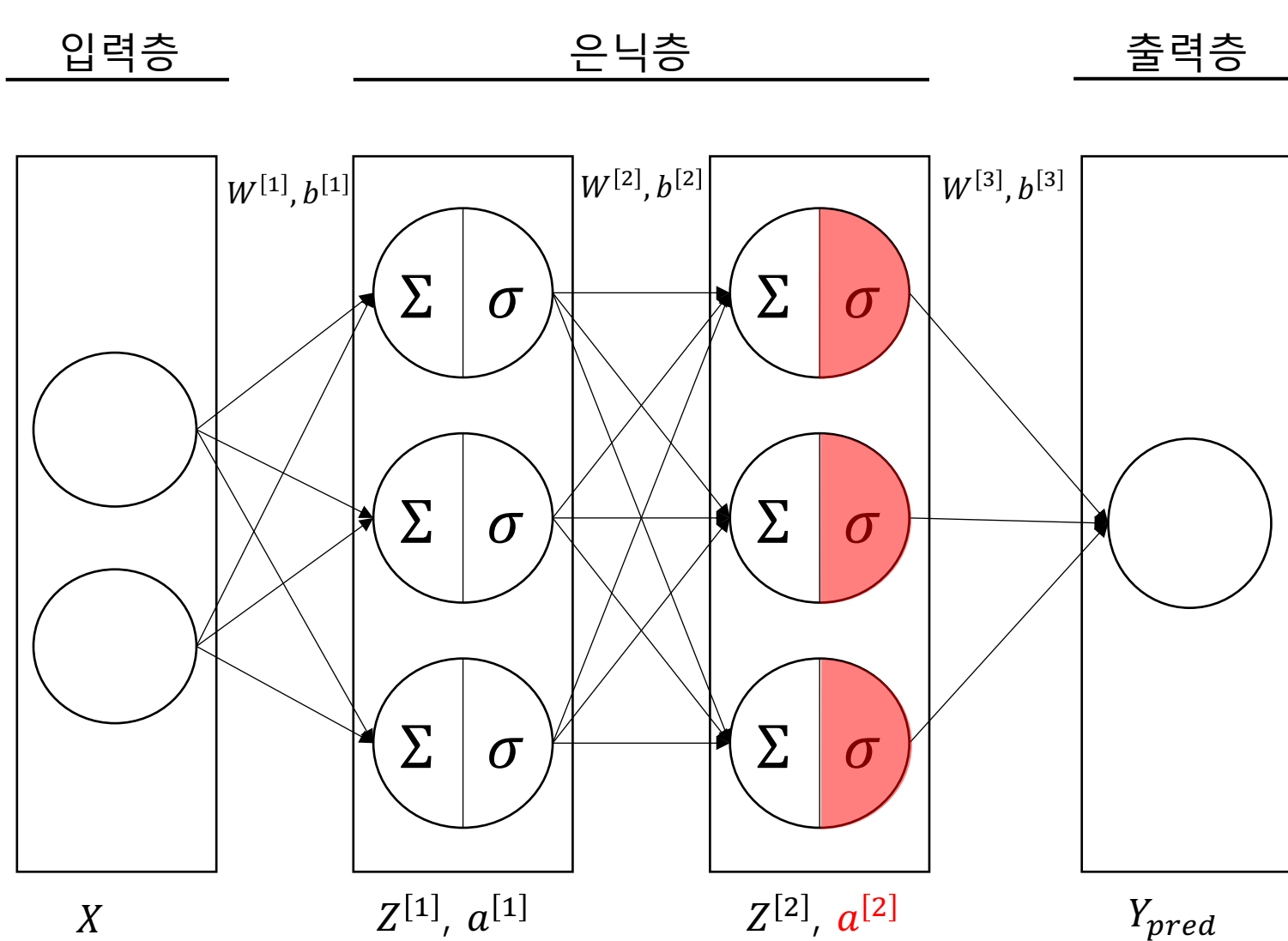


$$Z^{[1]} = XW^{[1]} + b^{[1]}$$

$$a^{[1]} = \text{relu}(Z^{[1]})$$

$$Z^{[2]} = a^{[1]}W^{[2]} + b^{[2]}$$

3층 신경망에서의 순전파



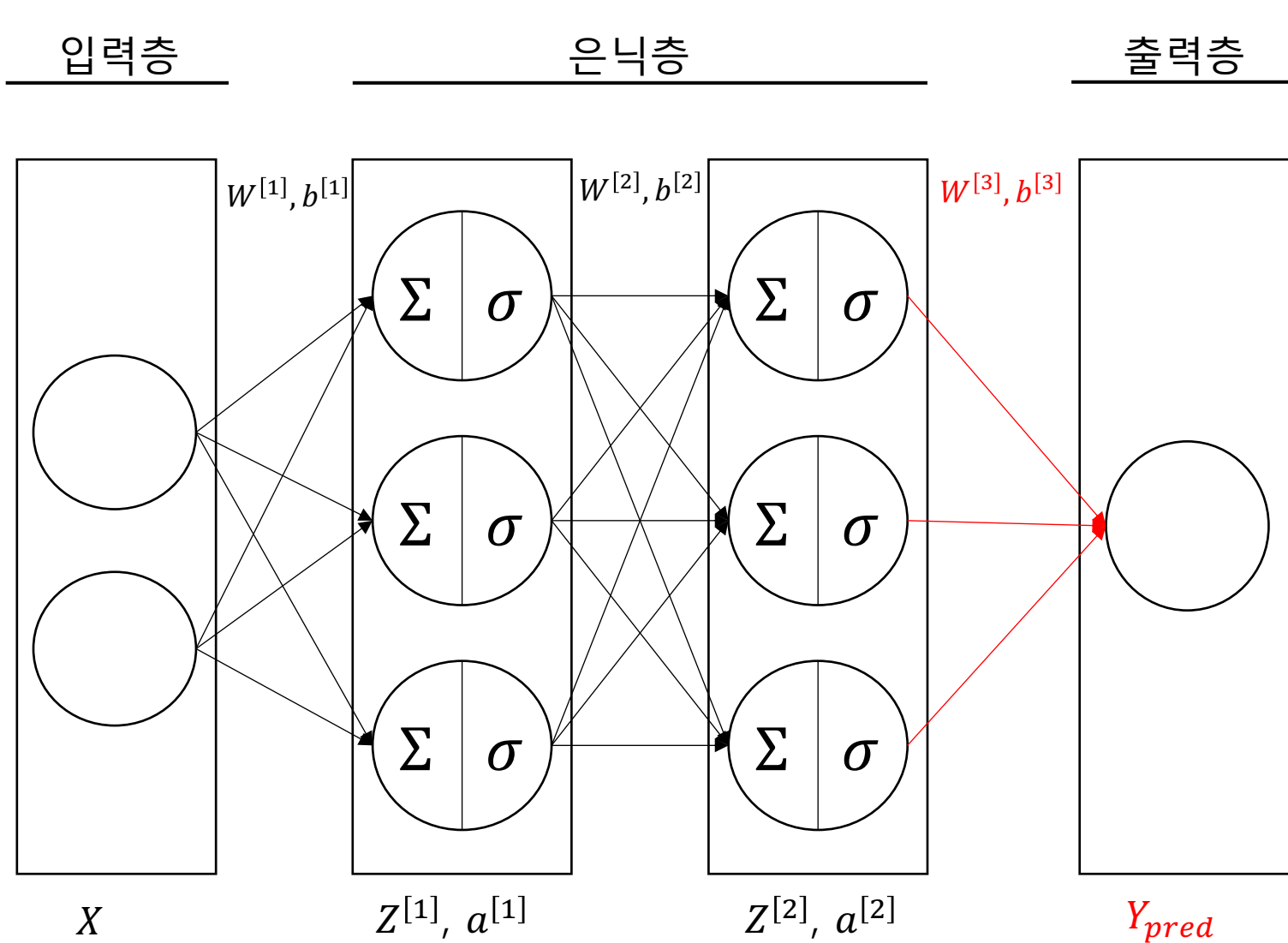
$$Z^{[1]} = XW^{[1]} + b^{[1]}$$

$$a^{[1]} = \text{relu}(Z^{[1]})$$

$$Z^{[2]} = a^{[1]}W^{[2]} + b^{[2]}$$

$$a^{[2]} = \text{relu}(Z^{[2]})$$

3층 신경망에서의 순전파



순전파

$$Z^{[1]} = XW^{[1]} + b^{[1]}$$

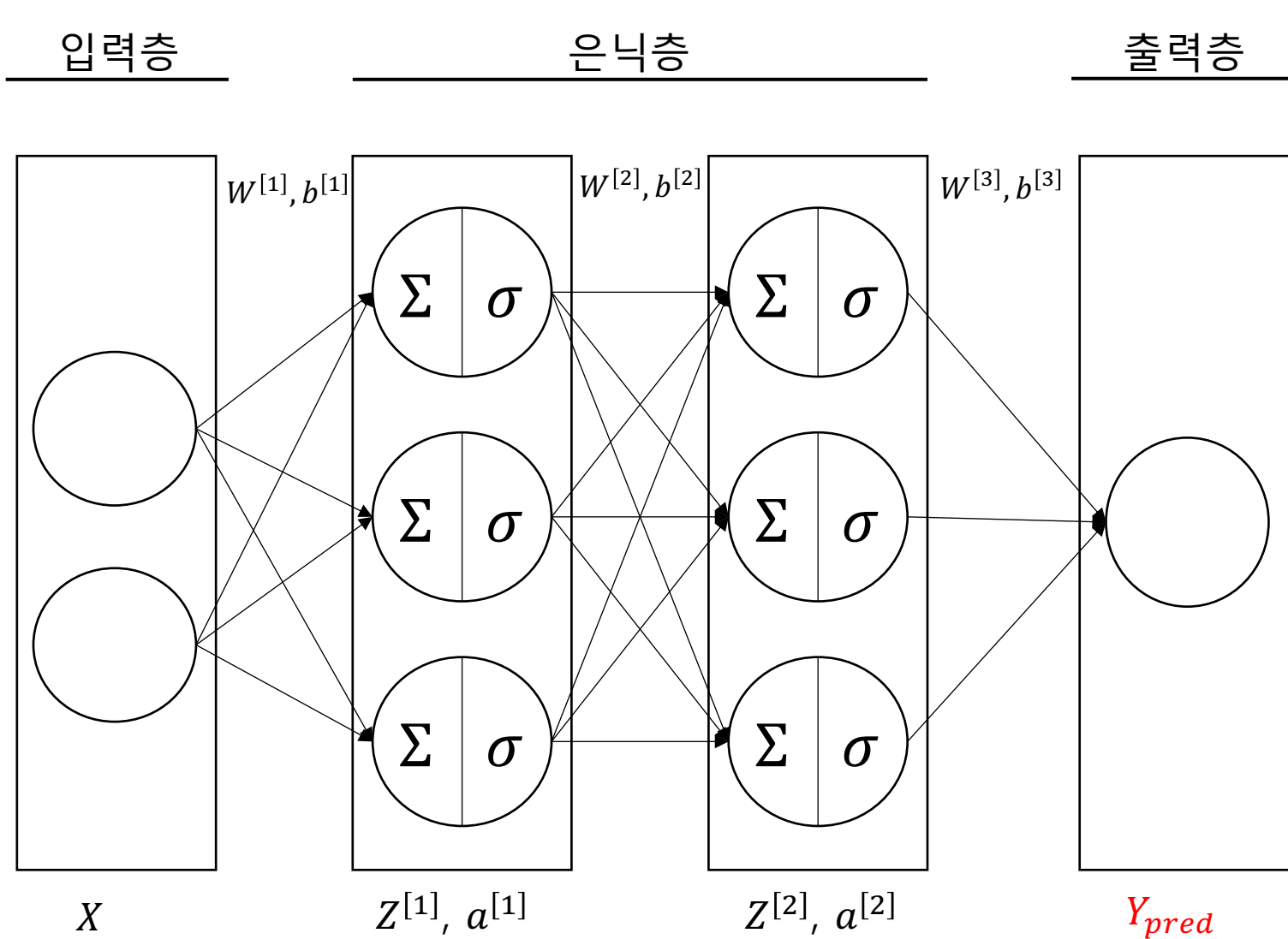
$$a^{[1]} = \text{relu}(Z^{[1]})$$

$$Z^{[2]} = a^{[1]}W^{[2]} + b^{[2]}$$

$$a^{[2]} = \text{relu}(Z^{[2]})$$

$$Y_{pred} = a^{[2]}W^{[3]} + b^{[3]}$$

3층 신경망에서의 순전파



순전파

$$Z^{[1]} = XW^{[1]} + b^{[1]}$$

$$a^{[1]} = \text{relu}(Z^{[1]})$$

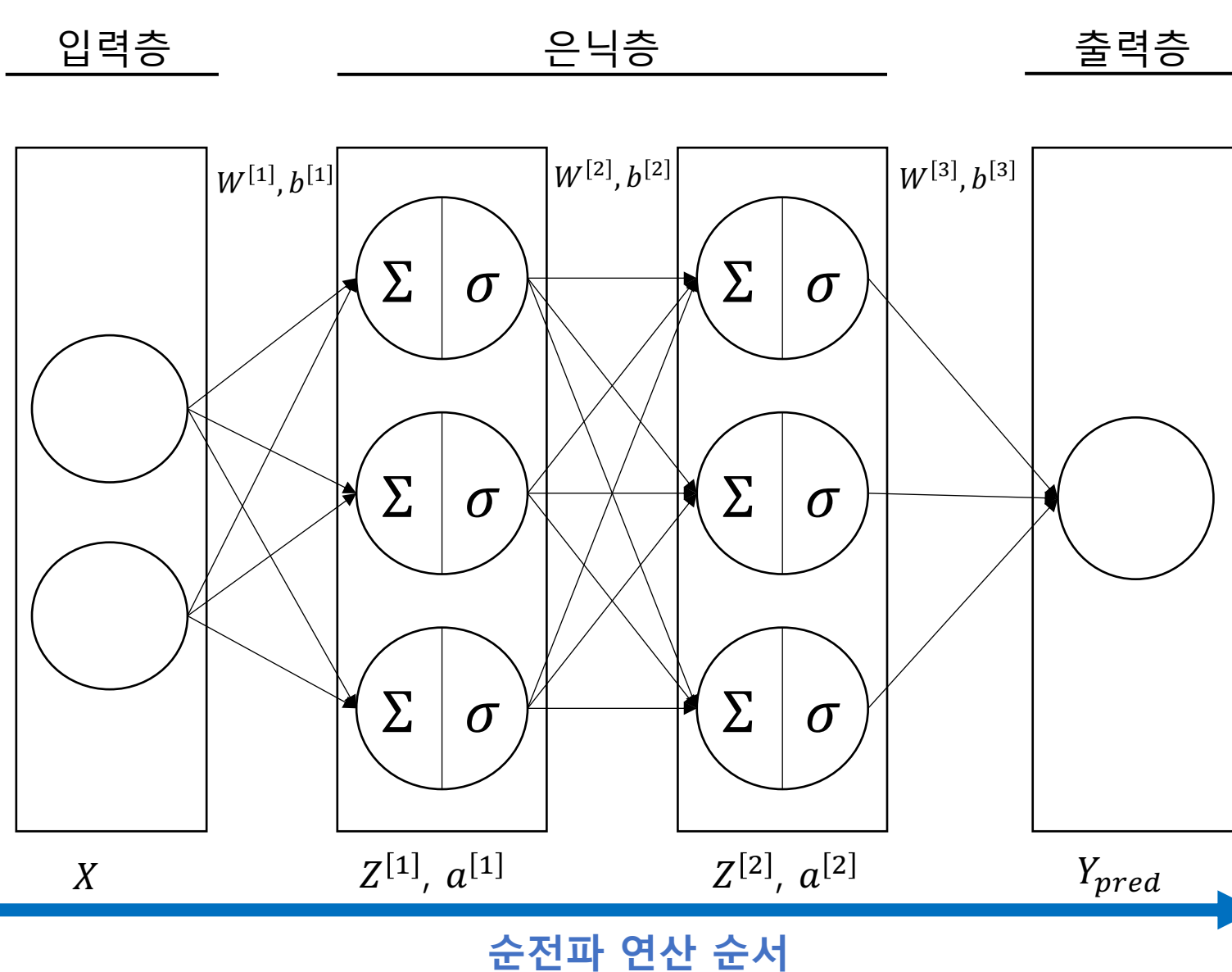
$$Z^{[2]} = a^{[1]}W^{[2]} + b^{[2]}$$

$$a^{[2]} = \text{relu}(Z^{[2]})$$

$$Y_{pred} = a^{[2]}W^{[3]} + b^{[3]}$$

$$Loss = \frac{1}{2}(Y_{pred} - Y_{true})^2 \leftarrow \text{손실함수}$$

3층 신경망에서의 순전파



순전파

입력값(X)로부터 Y_{pred} 를 산출하는 과정

$$Z^{[1]} = XW^{[1]} + b^{[1]}$$

$$a^{[1]} = \text{relu}(Z^{[1]})$$

$$Z^{[2]} = a^{[1]}W^{[2]} + b^{[2]}$$

$$a^{[2]} = \text{relu}(Z^{[2]})$$

$$Y_{pred} = a^{[2]}W^{[3]} + b^{[3]}$$

$$\text{Loss} = \frac{1}{2}(Y_{pred} - Y_{true})^2 \leftarrow \text{손실함수}$$