1)

Not examinable.

2)

a)

AND: w\_1 = 1, w\_2 = 1, f(x) = 0 if x < 2 else 1

OR: w\_1 = 1, w\_2 = 1, f(x) = 0 if x < 1 else 1

NAND: w\_1 = 1, w\_2 = 1, f(x) = 0 if x > 1 else 1

b)

x\_1, x\_2 -> OR -> NAND ->

1->

b alternate)

x1 , x2 -> OR ->

AND ->

x1 , x2 -> NAND ->

c)

Regularisation adds information or constraints to stop the model from overfitting. For example, penalising how large the model weights can be, effectively reducing the model capacity and making it smoother. For L2 regularisation, \lambda \sum\_w w^2 is added to the loss function.

d)



Classifier A

0.2 \pm 2.58 \sqrt{\frac{0.2(1-0.2)}{100}} = 0.2 +- 0.1032

Classifier B

0.23 \pm 2.58 \sqrt{\frac{0.23(1-0.23)}{10000}} = 0.23 +- 0.0109

You would trust B more as it is much more likely to be correctly showing a 77% accuracy whereas A could vary between 70% and 90%

3)

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