DL/ML Summer Training 2022 Subjective Test

Total Marks: 5

1. You have a dataset D1 with 1 million labelled training examples for classification, and dataset D2 with 100 labelled training examples. Your friend trains a model from scratch on dataset D2. You decide to train on D1, and then apply transfer learning to train on D2. State one problem your friend is likely to find with his approach. How does your approach address this problem?   (**1 Mark**)

2. You are given the following piece of code for forward propagation through a single hidden layer in a neural network. This layer uses the sigmoid activation. Identify and correct the error. **(1 Mark)**

```python
import numpy as np

def forward_prop(W, a_prev, b):
    z = W*a_prev + b
    a = 1/(1+np.exp(-z)) #sigmoid
    return a
```

3. Explain the role of the Convolution Layer in CNN. Explain these following layers in brief - Pooling layer, Fully connected layer, ReLU layer **(2 marks)**

4. Explain the confusion matrix with all data points (TP, FP, etc.) and recall, precision, and accuracy. **(1 Marks)**