1. CDT402-Deep Learning for Data Science

2. Module 4

3.

1. Illustrate the workings of the RNN with an example of a single sequence defined on a vocabulary of four words.
2. List the differences between LSTM and GRU
3. Show the steps involved in an LSTM to predict stock prices.Give one advantage of using an RNN rather than a convolutional network.
4. How does a recursive neural network work?
5. Differentiate between Vanilla RNN and Gated RNN.
6. With necessary diagram, explain the three different design patterns for recurrent neural networks.
7. If we have a recurrent neural network (RNN), we can view it as a different type of network by "unrolling it through time". Briefly explain what that means.
8. Explain the architecture of GRU.
9. The vanishing gradient problem is more pronounced in RNN than in traditional neural networks. Give reasons. Discuss a solution for the problem.
10. Show the steps involved in an LSTM to predict stock prices. Give one advantage of using an RNN rather than a convolutional network.
11. Compare architecture of Gated Recurrent Unit (GRU) and LSTM.
12. Illustrate the working of an RNN in language modelling with an example. Show how an input sequence is processed and how the model predicts the next word.
13. Explain the language modelling example of RNN.
14. Given an n-word sentence, we want to predict the (n+1)th word in the sequence. Which neural network architecture is best suited for this task, and why?
15. What are the challenges in training Recurrent Neural Network?
16. Illustrate the working of RNN-based model used in text summarization applications where a long input document is converted into a shorter version.
17. Design a multi-layered Recurrent Neural Network (RNN) that takes a sequence of length 'T' as input and generates a single output Context.
18. A Recurrent Neural Network (RNN) was developed for long time series prediction. But the accuracy obtained was only 50%. What could be the problem for this model. Discuss a solution.
19. Explain how LSTM addresses the long term dependency issues in language models.
20. Discuss the important design patterns of Recurrent Neural Networks (RNNs).