1. What are Vanilla autoencoders

**Ans : In its simplest form, the autoencoder is a three layers net, i.e. a neural net with one hidden layer. The input and output are the same, and we learn how to reconstruct the input, for example using the adam optimizer and the mean squared error loss function.**

1. What are Sparse autoencoders

**Ans : A Sparse Autoencoder is a type of autoencoder that employs sparsity to achieve an information bottleneck. Specifically the loss function is constructed so that activations are penalized within a layer.**

1. What are Denoising autoencoders

**Ans : A Denoising Autoencoder is a modification on the autoencoder to prevent the network learning the identity function. Denoising autoencoders solve this problem by corrupting the input data on purpose, adding noise or masking some of the input values.**

1. What are Convolutional autoencoders

**Ans : Convolutional Autoencoder is a variant of Convolutional Neural Networks that are used as the tools for unsupervised learning of convolution filters. They are generally applied in the task of image reconstruction to minimize reconstruction errors by learning the optimal filters.**

1. What are Stacked autoencoders

**Ans : A stacked autoencoder is a neural network consist several layers of sparse autoencoders where output of each hidden layer is connected to the input of the successive hidden layer.**

1. Explain how to generate sentences using LSTM autoencoders

**Ans : Implementation**

* **Load the necessary libraries required for LSTM and NLP purposes.**
* **Load the text data.**
* **Performing the required text cleaning.**
* **Create a dictionary of words with keys as integer values.**
* **Prepare dataset as input and output sets using dictionary.**
* **Define our LSTM model for text generation.**

1. Explain Extractive summarization

**Ans : Extractive summarization picks up sentences directly from the document based on a scoring function to form a coherent summary. This method work by identifying important sections of the text cropping out and stitch together portions of the content to produce a condensed version.**

1. Explain Abstractive summarization

**Ans : Text summarization refers to the technique of shortening long pieces of text. The intention is to create a coherent and fluent summary having only the main points outlined in the document. Automatic text summarization is a common problem in machine learning and natural language processing (NLP).**

1. Explain Beam search

**Ans : In computer science, beam search is a heuristic search algorithm that explores a graph by expanding the most promising node in a limited set. Beam search is an optimization of best-first search that reduces its memory requirements.**

1. Explain Length normalization

**Ans : One simple length normalization formula is to divide the number of occurrences by the length of the document. For example, we can measure the length in pages and divide the number of occurrences (term frequency) by the number of pages as seen in Column 4 above.**

1. Explain Coverage normalization

**Ans : The plots are constructed by first determining the coverage of each individual base and normalizing the coverage over all the bases. To calculate normalized coverage, the coverage is divided by the average coverage over all 10 base positions**

1. Explain ROUGE metric evaluation

**And : ROUGE stands for Recall-Oriented Understudy for Gisting Evaluation. It is essentially a set of metrics for evaluating automatic summarization of texts as well as machine translations. It works by comparing an automatically produced summary or translation against a set of reference summaries (typically human-produced).**