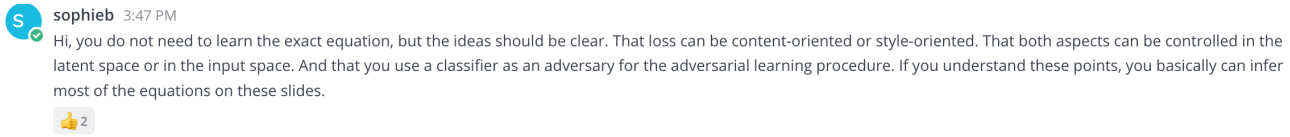
NLP

Dirichlet VAE
Encoder => Document to topics representation
The document has multiple words
Decoder => topic to document distribution



1- Regarding the exam: it was of 50 marks and 24 marks was passing at that time

2- Overall exam was application based

3- Exam came as section wise like first section was introduction, basic questions were asked in it, there was question related we have to explain back propagation, and Neural network was given you have to show how weights were updated

4- Then there was a section of word embeddings, in one question you have to explain the skipgram

5- Objective function of word2vec was asked

6- There was a scenario given in which you have to explain how other predicted given cbow.

7- Other sections based on transformer, topic models, style transfer and reinforcement learning. I would say focus on reinforcement learning as questions were easy from that sections

8-TF-IDF Calc, Computational Graph Ubung, Word2Vec, Reinforcement Learning From Human Feedback (am Ende)

9- For VAE:

- a question about how we can solve the intractable starting from slide 11
- another question asks about "under which condition we Maximize the variational lower bound" slide 21
- reparameterization trick solving the sampling breaks backpropagation
- why Dirichlen? Why not Gaussian?
- question about using GANs, there were like a problem explained in plain text and you need to suggest a model design using GAN

10- for RL

- Actor-Critic around slide 26, a conceptual question about it
- RLHF: Three steps in general: slide 40
- InstructGPT: High-level methodology slide 46

11- Transformers:

- self_attention mechanism calculation (understanding the vectors and how they're multiplied in the matrix)
- positional encoding

12- The last time exam pattern was that they were testing the broad understanding of the topics without much going deep into the derivations and proofs.

13-There was a question on Attention mechanism calculation, where we were given values for Query, Key and Value vectors

14- Gave a scenario (I don't remember) and question on similarity of two sentences? Solution goes like this - preprocess the sentences, extract word embeddings using word2Vec or BERT then use dot product similatity score to compare the two items.....something like this.

15- Basic definitions in Reinforcement Learning chapter.