1. Word embeddings capture semantic meaning by representing words as dense vectors in a continuous vector space. Words with similar meanings are represented by vectors that are close together in this space.

2. Recurrent Neural Networks (RNNs) are a class of neural networks designed to process sequential data. They have loops that allow information to persist across time steps, making them suitable for tasks like text processing and sequence generation.

3. Encoder-decoder concept: It involves using two separate RNNs, where the encoder processes the input sequence and creates a fixed-length vector representation (context), which the decoder uses to generate the output sequence in tasks like machine translation or text summarization.

4. Advantages of attention-based mechanisms: They allow the model to focus on relevant parts of the input sequence while generating the output. This improves performance in long sequences and complex tasks, making it easier to capture dependencies between words.

5. Self-attention mechanism: It captures dependencies between words in a sentence by calculating attention weights between all pairs of words in the sequence, enabling the model to focus on important words during processing.

6. Transformer architecture: It's a model architecture based on self-attention mechanisms, enabling parallelization and capturing long-range dependencies efficiently. It outperforms traditional RNN-based models in text processing tasks.

7. Text generation using generative-based approaches: It involves using models like language models or GPT (Generative Pre-trained Transformer) to generate text based on a given prompt or context.

8. Applications of generative-based approaches: Text completion, language translation, chatbots, creative writing, and more.

9. Challenges in building conversation AI systems: Maintaining context, generating coherent responses, handling user intent, and avoiding biased or inappropriate responses.

10. Handling dialogue context: Models use context window or history of conversation to understand the current dialogue and maintain coherence in responses.

11. Intent recognition in conversation AI: It's the task of understanding the user's intention or purpose behind a given query or utterance.

12. Advantages of word embeddings: They provide dense and continuous representations that capture semantic meaning, improve generalization, and reduce dimensionality in text preprocessing.

13. RNN-based techniques handle sequential information by maintaining hidden states that allow information to flow from one time step to another, capturing dependencies in the sequence.

14. Role of the encoder: It processes the input sequence and creates a context representation (embedding) that summarizes the input information.

15. Attention-based mechanism: It allows the model to focus on relevant parts of the input sequence during processing, improving performance in tasks like machine translation.

16. Self-attention mechanism captures dependencies by calculating attention weights between all pairs of words in the input sequence, enabling the model to focus on important words.

17. Advantages of the transformer architecture: It captures long-range dependencies efficiently, enables parallel computation, and outperforms traditional RNN-based models in text processing.

18. Applications of text generation: Text completion, language translation, chatbots, and text summarization.

19. Generative models in conversation AI: They can be used to generate coherent and contextually appropriate responses in chatbot or dialogue systems.

20. Natural Language Understanding (NLU) in conversation AI: It involves understanding user intents, extracting relevant information, and identifying the context in conversation AI systems.

21. Challenges in building conversation AI for different languages/domains: Limited training data, language nuances, and domain-specific vocabulary.

22. Role of word embeddings in sentiment analysis: They capture semantic meaning in text, allowing sentiment analysis models to understand the sentiment conveyed by words and sentences.

23. RNN-based techniques handle long-term dependencies by maintaining hidden states that allow information to flow across multiple time steps.

24. Sequence-to-sequence models: They consist of encoder-decoder architectures, where the encoder processes the input sequence and generates a fixed-length context, which the decoder uses to produce the output sequence.

25. Significance of attention-based mechanisms in machine translation: They allow the model to focus on relevant source words during translation, improving translation quality.

26. Challenges in training generative-based models for text generation: Ensuring coherence and avoiding repetitive or nonsensical outputs.

27. Evaluation of conversation AI systems: Metrics like BLEU score, perplexity, and human evaluations can be used to assess performance and effectiveness.

28. Transfer learning in text preprocessing: It involves using pre-trained language models to extract useful features for downstream tasks, reducing the need for extensive task-specific training data.

29. Challenges in implementing attention-based mechanisms: Increased computational cost and memory requirements, and optimizing the alignment between the source and target sequences.

30. Role of conversation AI in enhancing user experiences on social media: It enables personalized interactions, efficient customer support, and real-time engagement with users.