1. Prompt Engineering focuses on guiding LLMs to achieve specific outcomes without altering the model's weights or parameters. It refines prompts systematically to enhance accuracy and relevance of model's responses for various types of tasks.

2. Prompt injection is exploiting the limitations of LLM prompting, to craft prompts that elicit harmful or improper outputs from the LLM. **Direct Prompt Injection** (directly input a malicious prompt into the LLM) and **Indirect Prompt Injection** (manipulate the data that LLM draws from, rather than directly altering the prompt) are two types of prompt injection.

3. The key advantages of RAG are:
   - Adaptability: Handles evolving facts and information.
   - Efficiency: Allows augmentation of external information with LLMs' pretrained knowledge, eliminating the need to retrain LLM for new knowledge.
   - Reliability: Improves the factual consistency and accuracy of the generated content.

4. In ReAct framework, LLMs are used to generate both reasoning traces and task specific actions in an iterative manner, with each iteration comprising of **Thought**, **Act** & **Observation** steps. Reasoning traces allow the model to induce, track and update actions while Action step allows to interface with and gather information from external sources.

5. The main advantage of Dense Retrieval is that it matches and finds documents with similar meanings to the query, even if they don't share the exact keywords, whereas Sparse Retrieval only matches the exact words from the query with the documents. Dense retrieval therefore results in more accurate and relevant retrieval, especially for complex and nuanced queries.

6. Word C, Word D, Word A

7. Word A, Word B

8. Temperature controls the randomness of predictions made by the LLM. A low temperature results in more deterministic outputs while high temperature increases randomness and creativity in responses.

9. Lack of context in Zero-shot prompting can often lead to difficulty in understanding nuanced instructions resulting in vague/imprecise responses. On the other hand, CoT encourages deeper reasoning, promoting more thoughtful and structured problem solving, resulting in more accurate and reliable responses.

10. The main advantage of Auto-CoT prompting over CoT is that it automates the creation of reasoning chains, reducing reliance on manually crafted examples. Through this, it also achieves comparable or superior performance to traditional CoT.

11. Meta prompting prioritizes the format and pattern of the problems and solutions over specific content. As a result, it can still handle complex reasoning and cognitive tasks in a systematic way, without the burden of having to feed examples with each user prompt as in the case of few shot prompting.

12. To start with, use medium values for temperature and top-k parameters for a balanced approach and adjust them depending on the specific task at hand. When trying to generate focused, predictable text like in case of generating plot summaries, precise dialogues etc. lower their values. On the contrary, when trying to generate more diverse, creative, experimental text like in case of imaginative world building descriptions, increase them. In general, it is advised to tweak only one of these two parameters but not both.