

# Prompt Controls Cheatsheet

## 1. Tokenization & Context Window

Token = smallest unit (word/part/character). Models have max context length (e.g., 8k-128k tokens).

**Controls:** Use max\_tokens, check count with tools like tiktoken. Truncation drops earliest tokens.

## 2. Role Structure & Delimiters

System/User/Assistant roles define behavior and responses. Use delimiters (`[INST]`, `<|user|>`, etc.) to structure prompts.

## 3. Length & Output Structure

Control output with instructions like 'respond in 20 words' or 'output as a CSV table'. Use markdown/code block formatting when needed.

## 4. Style, Tone, and Register

Examples: 'Write in poetic form', 'Explain as if to a child'. Tone matters: business, technical, humorous, casual.

## 5. Divergent vs. Convergent Prompts

Divergent: 'List 10 ideas'. Convergent: 'Summarize in one sentence'. Use based on goal.

## 6. Decoding Parameters

Temperature: randomness control. Top-k/top-p: diversity filters. Presence/Frequency penalties: reduce repeats or encourage novelty.

## 7. Prompt Debugging & Readability

Make prompts modular, versionable. Use clear formatting and iterate based on feedback from outputs.

## 8. Common Pitfalls & Fixes

Fix ambiguity with examples. Prevent truncation with proper token limits. Clarify roles when confusion arises.

Control	Example Prompt
Output Length	Write exactly 15 words about AI.
Style & Tone	Explain quantum mechanics to a 5th grader in a cheerful tone.

Role	You are a Unix shell. Output only shell commands.
Output Format	Respond with a JSON object summarizing the main point.
Creativity (Temperature)	(API param) temperature=0.8
Convergent/Divergent	Give three possible summaries vs. one single best summary.

### ***Quick Diagnostic***

Output too random? → Lower temp/top-p.

Repeating? → Add frequency penalty.

Format wrong? → Clarify structure and give example.

### ***Reference Links***

- OpenAI API: <https://platform.openai.com/docs>
- HuggingFace Transformers: <https://huggingface.co/docs/transformers>
- Prompting Guide: <https://www.promptingguide.ai>