Here are 15 multiple-choice questions (MCQs) on the topic of the Template Pattern in the context of generative AI, with their answers highlighted:

1. What is the Template Pattern?

- A) A design pattern used in generative AI to generate code templates.
- B) A behavioral design pattern used to define the skeleton of an algorithm in a method, deferring some steps to subclasses.
- C) A pattern used to create templates for generating images in generative AI.
- **Answer: B**

2. In the Template Pattern, what is the purpose of the template method?

- A) To define the concrete implementations of the algorithm steps.
- B) To provide a placeholder for the algorithm steps that are implemented by subclasses.
- C) To specify the final steps of the algorithm.
- **Answer: B**

3. How does the Template Pattern promote code reuse?

- A) By allowing subclasses to implement their own versions of the algorithm steps.
- B) By providing a generic implementation that can be used across multiple subclasses.
- C) By defining a fixed algorithm structure that cannot be changed.
- **Answer: A**

4. Which of the following is an example of a template method in generative AI?

- A) A method that generates random numbers.
- B) A method that defines the structure of a neural network.
- C) A method that preprocesses input data before feeding it into a model.
- **Answer: B**

5. In the context of generative AI, how can the Template Pattern be applied?

- A) By defining a fixed structure for generating images.
- B) By creating a template for training machine learning models.
- C) By specifying the steps for processing input data.

- **Answer: B**

6. What is a key benefit of using the Template Pattern in generative AI?
   - A) It simplifies the implementation of complex algorithms.
   - B) It allows for greater flexibility in algorithm design.
   - C) It improves the performance of generative models.
   - **Answer: A**

7. Which part of the Template Pattern is responsible for defining the algorithm structure?
   - A) Concrete class
   - B) Abstract class
   - C) Template method
   - **Answer: B**

8. How does the Template Pattern differ from other design patterns?
   - A) It focuses on creating templates for code generation.
   - B) It emphasizes the use of inheritance to define algorithm steps.
   - C) It provides a framework for implementing algorithms with interchangeable parts.
   - **Answer: B**

9. What is the role of the concrete class in the Template Pattern?
   - A) To implement the algorithm steps defined in the abstract class.
   - B) To define the structure of the algorithm.
   - C) To provide a blueprint for generating code templates.
   - **Answer: A**

10. Which of the following statements is true about the Template Pattern?
    - A) It allows for runtime changes in the algorithm structure.
    - B) It enforces a fixed algorithm structure that cannot be modified.
    - C) It provides a flexible way to define algorithms with varying steps.
    - **Answer: B**

11. How does the Template Pattern support the Open-Closed Principle?
    - A) By allowing the algorithm structure to be modified at runtime.
    - B) By providing a way to extend the algorithm without modifying its structure.
    - C) By enforcing a fixed algorithm structure that cannot be changed.
    - **Answer: B**

12. In the Template Pattern, what happens if a subclass does not implement all the algorithm steps?
    - A) The algorithm will fail at runtime.
    - B) The superclass will provide default implementations for the missing steps.
    - C) The compiler will throw an error.
    - **Answer: A**

13. What is the primary use of the Template Pattern in generative AI?
    - A) To define the structure of a generative model.
    - B) To specify the steps for generating images.
    - C) To provide a framework for implementing generative algorithms.
    - **Answer: C**

14. Which of the following is a disadvantage of using the Template Pattern in generative AI?
    - A) It can lead to code duplication.
    - B) It may restrict the flexibility of algorithm design.
    - C) It requires complex inheritance hierarchies.
    - **Answer: B**

15. How does the Template Pattern improve the maintainability of generative AI systems?
    - A) By allowing for easy modification of algorithm steps.
    - B) By providing a clear separation between algorithm structure and implementation details.
    - C) By enabling the reuse of existing algorithm implementations.
    - **Answer: B**