## Teacher Answer Key

### Case Study

1. AI image generators were trained on billions of internet images, which likely included Reina's publicly posted artwork paired with descriptions. The model learned the statistical patterns of her visual style, including her color palette, texture choices, and compositional approach, and encoded those patterns in its parameters. By specifying her name in a prompt, a user could leverage those learned patterns to generate new images that closely resemble her style.

2. Reina's situation raises questions about whether using artists' publicly posted work as training data constitutes copyright infringement and whether artists deserve compensation when their style influences AI outputs. It also raises questions about fair competition: if AI can replicate years of artistic development in seconds at no cost, does that unfairly undermine the commercial value of human creative labor? These questions are currently being resolved through ongoing lawsuits and proposed legislation.

### Multiple Choice

1. B

2. D

3. A

### Matching

1-B, 2-A, 3-E, 4-C, 5-D

### Fill-in-the-Blank

1) noise, 2) engineering, 3) intimate

### Short Answer (Sample Responses)

Q1: The user writes a text prompt, which is converted into a numerical vector by the text encoder. The diffusion model starts with a field of random noise and uses the text vector to guide a series of denoising steps, progressively removing noise and adding visual structure that corresponds to the prompt. After dozens to hundreds of steps, a coherent image matching the description emerges.

Q2: The text encoder converts the prompt into a numerical representation, and the diffusion model uses that representation to steer image generation. A vague prompt produces a weak, generic signal that gives the model little guidance, resulting in generic or arbitrary outputs. A detailed prompt specifying style, lighting,

composition, and subject gives the model strong, specific guidance and produces much more targeted and impressive results.

Q3: AI image generation democratizes visual creativity by allowing anyone to produce high-quality images without artistic training, opening new possibilities for small businesses, educators, and creative projects. At the same time, the same technology enables the creation of photorealistic fake images of real people, non-consensual intimate imagery, and commercial exploitation of artists' styles without consent, creating serious legal, ethical, and safety problems that society is still working to address.