

I. Intellectual Property

1. Compare **Copy Protection** (a technical measure) and **Intellectual Protection** (a legal framework) and explain how **DRM** serves as a bridge between the two.
 2. Compare material with a **Copyright** to **Public Domain** material
 3. What does **Fair Use** allow?
 4. How do **encryption** and **watermarking** work together to protect digital content from unauthorized copying?
-

II. Animation and Graphics

1. Compare and contrast **Cel-based** animation and modern **2D** digital animation, focusing on the method of frame creation.
 2. Explain the function of **Keyframes** and how **Tweening** utilizes interpolation to generate the intermediate frames.
 3. How does **Programmed Animation** (e.g., via code or scripts) offer an advantage over a fixed **Keyframe** timeline for interactive multimedia?
 4. What is the purpose of the **Rendering** phase in the **3D** animation pipeline, and why is it often the most time-consuming step?
 5. Compare the file formats **JPEG**, **GIF**, and **BMP** based on their suitability for: photographic quality, and animation/transparency in a multimedia project
 6. Define **Frame Rate** and explain why 24 fps is the standard for film while higher rates like 60 fps are preferred for high-action video games.
 7. In the context of the **MPEG** standard, what is an **Inter-frame** (P-frame or B-frame), and how does it achieve greater compression than an **Intra-frame** I-frame?
 8. Explain the difference between **Variable Bit Rate (VBR)** and **Constant Bit Rate (CBR)** in video encoding and suggest a scenario where each is preferable.
 9. Describe the difference between *spatial* compression (used within a single frame) and *temporal* compression (used across frames).
 10. If a **3D** character model has a high polygon count, how does this affect the complexity and time required for **Rendering**?
-

III. Video and Audio Technology

1. What is the technical definition of **Quantization** in digital audio, and how does **Bit Depth** relate to the level of quantization?
2. Differentiate between **Synthesized** sound and **Sampled** sound in terms of the source material and storage.
3. What is **MIDI**, and why is it extremely efficient for controlling musical instruments but incapable of storing the actual sound of a human voice?
4. Describe two different strategies for **Delivering Audio Online** and note the advantage of each.

5. Why is **Variable Bit Rate** often used for stored media like movie files, while **Constant Bit Rate** is often used for live video streaming?
6. A high-quality audio file uses a 16-bit **Quantization** and a sample rate of 44.1 kHz. Calculate the uncompressed bit rate for a **mono** channel in **bits/second**.
7. What is the fundamental principle of **psychoacoustics** that allows the **MP3** codec to achieve such significant file size reduction?
8. What is a key difference between a lossless image format and a lossy format?
9. What is the advantage of using the **MIDI** standard over a **Sampled** audio file when creating music for a small-sized game or application?
10. What is the concept of motion vector and how does it's prediction contribute to the high compression achieved by **MPEG: Inter-frames**?