**Q1. How do raster images differ from vector images?**

Answer: Raster image is the image that is broken down into a two-dimensional grid of colored squares whereas Vector images are composed of objects such as lines, circles, Bezier curves, and polygons.

The major difference is raster images is made up of pixels, each color arranged to display an image. When you enlarge the image file without changing the number of pixels, the image will look blurry. When you enlarge the file by adding more pixels, the pixels are added randomly, the image rarely producing good result. But vector image is made up of paths and are mathematical calculations from one point to another that from lines and shapes. When you enlarge a vector image, it will look the same without losing quality.

**Q2. What is anti-aliasing and what issues does it create with transparent images?**

Answer: Anti-aliasing is certainly something that should be understood as thoroughly as possible to create high quality images. Anti-aliasing refers to methods of eliminating these unwanted artifacts. In the context of rasterizing images, antialiasing refers to the reduction of the jagged borders between colors.

Image file formats that support transparency are able to make certain designated pixels wholly or partially transparent, so that the background color or texture shows through. In this way, non-rectangular images may be simulated regardless of the background color or texture of the user agent.

**Q3. Describe the main features of the SVG file format?**

Answer: The **SVG** (Scalable Vector Graphics) file format is a vector format, and now has reasonably solid browser support on the desktop

1. Like all vector formats, SVG graphics do not lose quality when enlarged or reduced
2. SVG is an open-source standard, and the files are actually XML files
3. SVG files end up being part of the HTML document, thus they can be manipulated by JavaScript

**Q4. Explain the relationship between media encoding, codecs, and container formats?**

Answer: Two concepts are essential in understanding media formats is media encoding and container formats. **Media encoding** is encoded using compression/decompression software, usually referred to as a codec (for compression/decompression) For web-based video, three main codecs: H.264 Theora VP8 For web-based audio, three main codecs: MP3 AAC Vorbis

The **container format** specifies how that information is stored in a file, and how the different information within it is synchronized.

**container** is what we typically associate with the file format. Containers "contain" the various components of a video: the stream of images, the sound, and anything else. For example, you could have multiple soundtracks and subtitles included in a video file, if the container format allows it. Example of popular containers are OGG, Matroska, AVI, MPEG.

**Codecs** are ways of "coding" and "decoding" streams. Their job is typically to compress data so that you can store and transmit files with a smaller filesize. There are many codecs available out there, each with their strengths, weaknesses and peculiarities, and choosing the right codec with the right settings for the right situation is close to be a form of art in itself.

**Q5. Briefly describe the RGB, CMYK, and HSL color models?**

Answer: **RGB**(red green blue):

the RGB colors combine to create white, they are also called additive colors.

The absence of colored light is black

Adding all colors together creates white

6 Digit Hexadecimal notation

#RRGGBB, where each digit 0-F hex

CSS rgb function

Rgb(red, green, blue), values 0-255

**CMYK**: In traditional color printing, color is created through overlapping cyan, magenta, yellow, and black dots that from a distance create the illusion of the combined color. For this a different color model is necessary, namely

CMYK color model for Cyan-Magenta Yellow-Key (or blacK).

**HSL:**

Hue, Saturation, Brightness(HSB) or Lightness(HSL)

is more closely aligned to the way we generally talk about color. It breaks a color down into three components:

hue (what we generally refer to as color)

saturation (the intensity or strength of a color

Lightness/brightness (that is, the relative lightness or darkness of a color)

**Q6. What is opacity?**

Answer: Opacity is the degree of transparency in the color. This value is also referred to as alpha transparency.

* Opacity is typically a percentage value between 0 and 100 (or between 0 and 1.0)
  + 0 means no opacity (transparent)
  + 100 means that the element is fully opaque (no transparency).
* You can also add opacity values to a color specification using the rgba() or hsla()

**Q7. How do pixels differ from halftones?**

Answer: When you see text and images on your desktopmonitor or your mobile screen, you are seeing many small squares of colored light called pixels that are arranged in a two-dimensional grid.

These same images and text on the printed pageare not created from pixels, but from small overlapping dots usually called halftones.

**Q8. What is color depth? What is its relationship to dithering?**

Answer:

**Color depth**: color depth refers to maximum number of possible colors that an image can contain.

Color depth is not the same thing as device color depth.

Most home and business-class LCD monitors are in fact often only 18-bit display devices

(262,144 colors) LCD monitors that can display true 24-bit color are more expensive.

**Dithering**: Monitors limited to less than true color create the illusion of more colors by dithering

the available colors in a diffuse pattern of pixels.

**Q9. Explain the difference between lossy and lossless compression?**

Answer: the major difference between lossy and lossless compression is lossy compression that it reduce the file size by eliminating pixel information with each save, at the highest levels of compression, you will begin to see blotches and noise appear at edges and in areas of flat color.

And lossless compression eliminating the transparency halo of GIF images, then pixel can become progressively more and more transparent along an images aliased edges.

In the compression of a file, all original data can be recovered when the file is uncompressed. With lossless compression, every single bit of data that was originally in the file remains after the file is uncompressed. All of the information is completely restored. This is generally the technique of choice for text or spreadsheet files, where losing words or financial data could pose a problem. The Graphics Interchange File is an image format used on the Web that provides lossless compression.

lossy compression reduces a file by permanently eliminating certain information, especially redundant information. When the file is uncompressed, only a part of the original information is still there. The [JPEG](http://searchsoa.techtarget.com/definition/JPEG) image file, commonly used for photographs and other complex still images on the Web, is an image that has lossy compression.

**Q10. Describe the main feature of the JPEG file format?**

Answer: JPEG (Joint Photographic Experts Group) or JPG is a 24-bit, true-color file format that is ideal for photographic images. It uses a sophisticated compression scheme that can dramatically reduce the file size. JPG is, however, a lossy compression scheme, meaning that it reduces the file size by eliminating pixel information with each save. At the highest levels of compression, you will begin to see blotches and noise appear at edges and in areas of flat color.

---- > Referred by a material from blackboard.