

1. The resolution is a:

- quantitative audio measure
Wrong. Resolution is related to video.
- measure of the audio quality
Wrong. Resolution is related to video.
- quantitative video measure**
Correct.
- measure of the video quality
Wrong. It gives the horizontal and vertical size of the image in pixels.

2. The sampling rate is a:

- quantitative audio measure**
Correct.
- measure of the audio quality
Wrong. It gives the number of samples that are taken.
- quantitative video measure
Wrong: Sampling is related to audio.
- measure of the video quality
Wrong: Sampling is related to audio.

3. The quantisation is a:

- quantitative audio measure
Wrong. It gives the number of different values which can be encoded for each sample.
- measure of the audio quality**
Correct.
- quantitative video measure
Wrong: Quantisation is related to audio.
- measure of the video quality
Wrong: Quantisation is related to audio.

4. The bit depth is a:

- quantitative audio measure
Wrong. Bit depth is related to video.
- measure of the audio quality
Wrong. Bit depth is related to video.
- quantitative video measure
Wrong. It gives the number of different values which can be encoded for each channel of each pixel.
- measure of the video quality**
Correct.

5. The file size reduction from 4:4:4 sampling to 4:2:0 subsampling is:

- ✗ 1/4
Wrong.
- ✗ 1/3
Wrong. This is 4:2:2 subsampling.
- ✓ 1/2
Correct.
- ✗ 3/4
Wrong.

6. By choosing a sampling rate of 96 kHz rather than 48 kHz we get:

- ✗ same size and double information
Wrong. The size doubles.
- ✓ double size and double information
Correct.
- ✗ same size and same information
Wrong. Both doubles.
- ✗ double size and same information
Wrong. The available information doubles.

7. By choosing a bit depth of 12 per channel rather than 8 we get:

- ✗ 50 % bigger files and 50 % better quality
Wrong. The quality increase is 16 times (2 power 4 more values which can be encoded).
- ✗ 1600 % bigger files and 50 % better quality
Wrong. Both values are wrong.
- ✓ 50 % bigger files and 1600 % better quality
Correct.
- ✗ 1600 % bigger files and 1600 % better quality
Wrong. The file size increases by 50 %, from 8 to 12 bit.

8. A typical lossless compression rate is:

- ✗ 1.5 : 1
Wrong. Usually it's more.
- ✓ 2 : 1
Correct. It depends of the image content and it varies but it's a realistic mean value for JPEG 2000 and FFV1.
- ✗ 2.5 : 1
Wrong. This is approximately the mathematically maximal value, but no video codec can reach it today.
- ✗ 3 : 1
Wrong. Usually it's less.

9. The current Bayer sensors only generate an incomplete RGB image:

- ✗ 1/3 red, 1/3 green and 1/3 blue
Wrong.
- ✗ 1/2 red, 1/4 green and 1/4 blue
Wrong.
- ✓ 1/4 red, 1/2 green and 1/4 blue
Correct.
- ✗ 1/4 red, 1/4 green and 1/2 blue
Wrong.

10. The steps for file format transformations are:

- ✗ decode → demultiplex → filter → multiplex → encode
Wrong. You cannot decode before demultiplexing.
- ✗ demultiplex → decode → filter → multiplex → encode
Wrong. You cannot encode after multiplexing.
- ✓ demultiplex → decode → filter → encode → multiplex
Correct.
- ✗ decode → demultiplex → filter → encode → multiplex
Wrong. You cannot decode before demultiplexing and you cannot encode after multiplexing.

11. Digital video is based on the following colour model:

- ✗ R'G'B'**
Wrong. This colour space is used in cinema, not in video.
- ✗ Y'UV**
Wrong. This colour space was used for analogue PAL television and video.
- ✗ Y'IQ**
Wrong. This colour space was used for analogue NTSC television and video.
- ✓ Y'CbCr**
Correct.

12. The raw video data format "rgb48le" can hold the same image quality as:

- ✗ yuv422p10le**
Wrong. The subsampling 4:2:2 reduces the data volume by 1/3. In addition, the bit depth per channel is 10 rather than 16.
- ✓ yuv444p16le**
Correct.
- ✗ bayer_bggr16le**
Wrong. Bayer sensors generate only 1/4 of the red information, 1/2 of the green and 1/4 of the blue. The missing data results from a digital blow-up.
- ✗ rgb24**
Wrong. The bit depth per channel is only 8 rather than 16.