

# Exercises on Lecture 6

编写：钟钧儒 最后修改日期：2018年4月7日

加粗部分即为答案

1. What is Analogue Data?

- a. A continuous representation which roughly describes the actual information.
- b. A discrete representation which precisely describes the actual information.
- c. A continuous representation which precisely describes the actual information.**
- d. A discrete representation which breaks the information into units and approximates the actual information.

出自PPT原文

2. What is Digital Data?

- a. A continuous representation which roughly describes the actual information.
- b. A discrete representation which precisely describes the actual information.
- c. A continuous representation which precisely describes the actual information.
- d. A discrete representation which breaks the information into units and approximates the actual information.**

出自PPT原文

3. In what way data represents that make the computer available to process?

- a. Represents in images.
- b. Represents in waves.
- c. Represents in particles.
- d. Represents in binary digits.**

计算机仅能处理二进制数字。很明显数据不能在计算机中被表示为图像、波形或者粒子。

4. In the following descriptions, which is correct?

- a. The goal to represent data is using as many bits as possible to ensure accuracy.

计算机表示数据的目标是“用最少的数据量准确地表达”，而不是通过暴力增加数据量来达到准确的目的。

- b. Lossless compression will lead to loss of original information.

无损压缩不会损失原始数据

- c. Lossy compression can be often seen in image and video compression.**

有损压缩常见于图片（JPEG、GIF）和视频（MPEG系列）压缩格式。因为图片和视频的原始数据量都非常大，而通过某些基于人类感受模式的模型可以有效地压缩体积，所以有损压缩在图片和视频的压缩中很常见。

d. Lossless compression gives up some non-curial information.

无损压缩不会损失任何数据。

5. In the following statements about text representation, which is correct?

a. A character set is an approach that a computer displays text.

是数据的表示方法，而不是显示方法。

**b. ASCII does not include Chinese characters.**

ASCII仅包含拉丁字符和其他符号，不包含中文等东亚文字编码。

c. Unicode does not include Chinese characters.

Unicode是ASCII的超集。增加的范围就有CJK文字。

d. ASCII uses 16 bits to represent a character.

ASCII使用8位数表示字符。

6. In the following statements about audio representation, which is correct?

**a. Sampling is an approach to represent audio.**

从模拟信号中采样是计算机表示音频的主要（可能是唯一）方法。

b. MP3 is a lossy compression format.

MP3是一种有损、无损结合的压缩格式。

c. MP3 stands for Moving Picture Experts Group 3 format.

MP3意味MPEG 1 Layer 3。

d. M4V is an audio format.

M4V是一种视频格式。系MPEG4中的视频流。

7. In the following statements about colour representation, which is correct?

a. A colour is represented by a combination of Red, Black, and White.

R、G、B三原色。

**b. True color uses 8 bits to represent a primary color.**

c. Resolution is the number of pixels per inch.

据课件，分辨率为图像的尺寸而不是像素密度。但据[维基百科](#)，Resolution可以指图像尺寸和像素密度两种含义。请以课件为准。

d. A BMP image is a combination of vectors.

BMP格式的图片是以像素而不是矢量存储的。一种新的用于网络的图片格式，[SVG](#)，则是基于矢量的格式。

8. In the following statements about video representation, which is NOT correct?

- a. A frame in a video is an image.
- b. Frame rate always measures in Frames Per Second.
- c. Almost all videos are encoded using lossless compression.**

由于视频数据量很大，所以一般使用有损压缩来减少体积。

- d. VLC Media Player is a video player.