

1.

Image and video processing has applications in (you can select more than one correct answer.)

1 point
- ☒

Consumer images

☒

Outer-space images
- ☒
- Medical images

2.

Images exist only in the visual spectrum.

1 point

☐

True

☒

False

3.

When you enter dark room in a bright day, it takes some time before you can see reasonable well in the room. Which visual process explains this phenomena?

1 point

☐

Color vision

☐

Binocular vision (2 eyes)

☒

Brightness adaptation☐

4.

Consider an image with 100 lines and 1000 pixels per line. Each pixel can take 256 different values. The total amount of bits needed to store that image is

1 point

☐

10,000

☒

800,000☐☐

5.

Sampling refers to

1 point

☐

Testing the possible positions of an object in an image

☒

Discretization of the spatial image domain.☐☐

6.

Quantization refers to

1 point

☐

Inversion of the pixel values.☐☐

☒

Discretization of the spatial image domain.

7.

Going from a pixel with coordinate (1,1) to a pixel with coordinate (0,0) takes

1 point

☐

Two steps both for 4 and 8 adjacency neighborhoods.☐

☒

One step for 8 adjacency and 2 steps for 4 adjacency☐

8.

The determinant of a scaling matrix is equal to 1.

1 point

☐

True

☒

False

9.

The determinant of a rotation matrix is

1 point

1

10.

When we quantize an image, the amount of memory needed to store it

1 point

☒

Decreases

☐

Increases

11.

A video has 30 frames (images) per second. Considering that each image has 1000×1000 pixels, an hour of video will occupy

1 point

☐

All the memory in my mobile phone☐☐

☒

We can't know

12.

If we quantize an image with double resolution (meaning we use twice the number of bits per pixel) and sample it with half the resolution in each direction, then

1 point

☒

The total storage needed is reduced by half

☐

The image quality remains the same

☐

The total storage needed is reduced 4 times

☐

The total storage needed remains the same

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