Chapter 2

When applicable, please select all correct answers.

1. The process of converting from analog to digital information is a two-step process—sampling and quantizing. In converting an analog image to a digital image, the sampling rate affects ____.
A. the bit depth of the resulting digital image
B. the pixel dimensions of the resulting digital image

2. The process of converting from analog to digital information is a two-step process—sampling and quantizing. In the quantization step, to convert an analog image to a digital image, ____.
A. a two-dimensional grid is applied on the image and each tiny cell on the grid is converted into a pixel
B. a two-dimensional grid is applied on the image to apply dithering to the image
C. an infinite number of color shades and tones in an analog image is mapped to a finite set of discrete color values
D. the resulting digital image file is compressed to have a smaller file size

3. Which of the following factors will increase the file size of a digital image?
A. larger pixel dimensions of the image
B. higher color depth

4. A digital image captured at a higher resolution ____ than it would have if it had been captured at a lower resolution.
A. captures more details
B. has more different colors
C. has a higher bit depth
D. has a larger file size
E. has larger pixel dimensions
F. uses a higher sampling rate

5. A digital image captured at a higher bit depth ____ than it would have if it had been captured at a lower bit depth.
A. captures more details
B. has more different colors
C. has a larger file size
D. has larger pixel dimensions
E. uses a higher sampling rate

6. The term *pixel* is contracted from the words ____ and ____.

7. True/False : A pixel is a point sample, not a little square.

8. True/False : An 1-bit color depth allows only black and white colors.

9. An 1-bit color depth allows ____ colors.

10. An 8-bit color depth allows ____ colors.

11. A 24-bit color depth allows ____ colors.

12. Bitmapped images are composed of ____.
A. individual pixels, which represent spatial samples of the image or scene
B. mathematical descriptions of image elements, which include points, lines, curves, and shapes

13. Vector graphics are composed of ____.
A. individual pixels, which represent spatial samples of the image or scene
B. mathematical descriptions of image elements, which include points, lines, curves, and shapes

14. The main advantage(s) of bitmapped images over vector graphics is (are) ____.
A. scalability or resolution independence of images
B. ease of editing the image content pixel by pixel
C. more compact file size compared to vector graphics

15. The main advantage(s) of vector graphics over bitmapped images is (are) ____.
A. scalability or resolution independence of images
B. ease of editing the image content pixel by pixel
C. more compact file size compared to bitmapped images

16. Sometimes when you magnify a picture on your computer screen, lines that should be straight lines appear to be jagged. This effect is called ____.
A. anti-aliasing
B. aliasing
C. dithering
D. indexing

17. Generally speaking, how does the file size change if the total number of pixels of an image is doubled?

18. Generally speaking, how does the file size change if the number of pixels of both the width and height of an image are doubled?

19. Generally speaking, how does the file size change if the bit depth of an image is increased from 8 bits to 16 bits?

20. Generally speaking, how does the file size change if the bit depth of an image is increased from 8 bits to 24 bits?

21. Give one example of the image file type that supports lossy compression and one that supports lossless compression.

22. Which of the following are file extensions of pixel-based files?
BMP DOC JPEG TXT PNG GIF FLA
JPG PSD TIFF EPS WMF SWF AI

23. Which of the following are file extensions of vector graphic files?
BMP DOC JPEG TXT PNG GIF FLA
JPG PSD TIFF EPS WMF SWF AI

24. What are the primary colors in the RGB color model?

25. What are the primary colors in the CMY color model?

26. What are the primaries in the HSB color model?

27. Which of the following color models takes the form of a color cube?
A. RGB
B. CMY
C. HSB
D. CIE XYZ

28. Which of the following color models takes the form of a hexacone?
A. RGB
B. CMY
C. HSB
D. CIE XYZ

29. Which of the primaries in the HSB color model takes the form of a color wheel?
A. hue

B. saturation
C. brightness

30. What is the color mixing method for the RGB color model?
A. additive
B. subtractive

31. What is the color mixing method for the CMY color model?
A. additive
B. subtractive

32. For the 24-bit color depth, what are the RGB values for
(i) white
(ii) black
(iii) red
(iv) green
(v) blue
(vi) cyan
(vii) magenta
(viii) yellow
(You can use the color picker in your image editing program to confirm your answers.)

33. What are the theoretical CMY values for
(i) white
(ii) black
(iii) red
(iv) green
(v) blue
(vi) cyan
(vii) magenta
(viii) yellow

34. What are the HSB values for
(i) white
(ii) black
(iii) red
(iv) green
(v) blue
(vi) cyan
(vii) magenta
(viii) yellow
(You can use the color picker in your image editing program to confirm your answers.)

35. What is the primary use of the CMYK color model?

36. Why don't the colors in a printed image look exactly the same as those you see on the computer screen?