Chapter 24

1. Which of the following does *not* directly affect the degree of shape distortion in an image:

a. object thickness and shape

b. angle of the object in relation to the image receptor plate

c. angle of the x-ray beam in relation to the object

d. centering of the object relative to the x-ray beam

e. SID

2. The rule for adjusting tube-to-tabletop distance for x-ray beam angles is used to maintain the:

a. sharpness of recorded detail

b. level of distortion

c. level of magnification

d. subject contrast in the remnant beam

e. overall exposure at the image receptor plate

3. Which of the following objects, if any long axis they possess is kept parallel to the image receptor plate, will show the most shape distortion when an x-ray beam is angled against them by 25 degrees:

a. a wedge-shaped object

b. a thick, flat object

c. a thin, tubular object

d. a thick spherical object

e. a small spherical object

4. Ceiszynski’s law states that to minimize distortion when an object cannot be placed parallel to

the image receptor plate, angle the x-ray beam:

a. isometrically

b. perpendicular to the object

c. perpendicular to the image receptor plate

d. parallel to the object

e. parallel to the image receptor plate

5. Upon angling the x-ray beam 25 degrees from vertical with an image receptor plate placed on

the tabletop, what must the tube-to-tabletop distance be in order to maintain an

approximate SID of 100 cm?

a. 93.75 cm

b. 87.5 cm

c. 81.25 inches

d. 75 cm

e. 62.5 cm

6. If the projected image of an object is already being distorted from being off-centered in the x-

ray beam, which of the following would make that distortion appear worse:

a. a short SID

b. a long SID

c. a short OID

d. a long SOD

7. Shape distortion in a projected image is controlled by:

a. image receptor speed

b. x-ray tube movement

c. focal spot size

d. alignment

e. distances

8. If the long axis of an object lies at a 25-degree angle from the film, and you cannot change it,

you should:

a. keep the CR perpendicular to the image receptor plate

b. angle the CR 25 degrees to the image receptor plate

c. angle the CR 18 degrees to the image receptor plate

d. angle the CR 12.5 degrees to the image receptor plate

e. angle the CR 6.25 degrees to the image receptor plate

9. While positioning for an x-ray exposure, the most common purpose of angling the x-ray beam

is to:

a. increase distance

b. minimize distortion of images

c. magnify images

d. desuperimpose images

e. sharpen images

10. For every 5 degrees of angulation placed on the CR, the tube-to-tabletop distance should be:

a. increased by 2.5 cm

b. reduced by 2.5 cm

c. increased by 5 cm

d. reduced by 5 cm

e. unmodified

11. With all other factors unchanged, if an object is tilted in relation to the receptor plate, the

image shape distortion will:

a. increase as a direct result

b. decrease as a direct result

c. not change at all

d. may be affected indirectly, but is not directly controlled by it

12. With all other factors unchanged, if the CR is off-centered to a flat object which is parallel to

the image receptor plate, image magnification will:

a. increase as a direct result

b. decrease as a direct result

c. not change at all

d. may be affected indirectly, but is not directly controlled by it

13. With all other factors unchanged, if the CR is angled perpendicular to an object which is

tilted in relation to the receptor plate, image shape distortion will:

a. increase as a direct result

b. decrease as a direct result

c. not change at all

d. may be affected indirectly, but is not directly controlled by it

14. A particular joint space lies 5 cm caudally to the location of the central ray. If this joint is

tilted 3.5 degrees toward the CR, how will the joint be demonstrated?

a. opened completely

b. closed off cephalic-to-caudal

c. closed off side-to-side

15. The lumbar spine normally has a lordotic curvature (concave posteriorly). With typical x-ray

beam divergence at 100 cm SID, the best way to position the lumbar spine so as to

fully open all of the intervertebral joint spaces is:

a. AP supine

b. PA prone

c. AP standing

16. Typical x-ray beam divergence at 100 cm SID is per centimeter in any direction away

from the CR:

a. 0.5 degrees

b. 0.7 degrees

c. 1 degrees

d. 2 degrees

e. none

17. The patient is supine with the mouth opened for a projection of the odontoid process. The

SID is 100 cm. If the CR is vertical and centered 3 cm caudal to the correct centering

point on the odontoid process, the x-ray actually passing through the process will be:

a. angled 1 degree cephalic

b. angled 2 degrees caudal

c. angled 5 degrees caudal

d. angled 2 degrees cephalic

e. angled 5 degrees cephalic