

Test Bank for Patient Care in Radiography 9th Ehrlich

Chapter 02: Image Quality Factors

Ehrlich: Patient Care in Radiography: With an Introduction to Medical Imaging, 9th Edition

MULTIPLE CHOICE

1. An x-ray exposure is made using the following factors: 200 mA, 0.04 seconds, 80 kVp, and 48 inches SID. In this case, which represents the value of the mAs?
- 0.08
 - 0.8
 - 8
 - 16,000

ANS: C REF: p. 22 OBJ: 3

2. An increase in OID will result in:
- increased magnification.
 - decreased image detail.
 - increased image detail.
- 1 only
 - 2 only
 - 1 and 2
 - 1 and 3

ANS: C REF: p. 30 OBJ: 6

3. The primary purpose of intensifying screens is to:
- protect the film from light and damage during radiography.
 - improve the definition on the radiograph.
 - reduce the quantity of radiation required to produce a satisfactory image.
 - reduce the possibility of artifacts on the film.

ANS: C REF: p. 25 OBJ: 8

4. In order to increase the penetration of the x-ray beam, which of the following factors should be increased?
- Kilovoltage
 - Milliamperage
 - mAs
 - Exposure time

ANS: A REF: p. 28 OBJ: 4

5. In order to increase optical density of a film/screen image, which of the following factors should be increased?
- Kilovoltage
 - SID
 - mAs
 - OID

ANS: C REF: p. 27 OBJ: 3

6. Magnification is affected by:
- a. OID only.
 - b. SID only.
 - c. both OID and SID.
 - d. neither OID nor SID.

ANS: C

REF: p. 29

OBJ: 4 | 6 | 7

7. An image receptor that contains a photostimulable plate that is converted to an image by processing with a laser is part of a system called:
- a. digital radiography (DR).
 - b. computed radiography (CR).
 - c. a film/screen system.
 - d. digital fluoroscopy.

ANS: B

REF: p. 26

OBJ: 8

8. Radiation exposure is directly proportional to:
- a. OID.
 - b. kVp.
 - c. mAs.
 - d. SID.

ANS: C

REF: p. 22

OBJ: 3

9. An image that is black in the darkest areas and white in the lightest areas is said to have:
- a. high contrast.
 - b. sharp detail.
 - c. low contrast.
 - d. poor detail.

ANS: A

REF: p. 31

OBJ: 10

10. To decrease the contrast on a radiographic image, you should:
- a. increase the kVp.
 - b. decrease the kVp.
 - c. increase the exposure time.
 - d. decrease the mAs.

ANS: A

REF: p. 28

OBJ: 4

11. An increase in kVp affects the x-ray beam by causing it to:
- a. have greater intensity.
 - b. be more homogeneous.
 - c. cover a larger area.
 - d. contain more long wavelengths.

ANS: A

REF: p. 23

OBJ: 4

12. Image detail is affected by:
- a. mAs and kVp
 - b. kVp and SID

- c. focal spot size and patient motion
- d. focal spot size and mAs

ANS: C REF: p. 28 OBJ: 12

13. When a radiographic image is visible immediately after exposure, without the need for processing, the image receptor system is of the type called:
- a. digital radiography (DR).
 - b. computed radiography (CR).
 - c. fluoroscopy.
 - d. film/screen radiography.

ANS: A REF: p. 27 OBJ: 8

14. When a large OID causes poor image detail, this can be compensated to some degree by increasing the:
- a. kVp.
 - b. SID.
 - c. mAs.
 - d. field size.

ANS: B REF: p. 28 OBJ: 7 | 12

15. When a change in SID necessitates a change in another factor in order to maintain image quality, the factor used to compensate is:
- a. kVp.
 - b. SID.
 - c. mAs.
 - d. field size.

ANS: C REF: p. 24 OBJ: 7

16. What is the effect of grid use on image quality, as compared to an exposure made without a grid?
- a. Contrast is increased.
 - b. Optical density is increased.
 - c. Image detail is increased.
 - d. Image distortion is decreased.

ANS: A REF: p. 27 OBJ: 11

17. Unequal magnification of various portions of the radiographic subject affects the image factor called:
- a. optical density.
 - b. image contrast.
 - c. image detail.
 - d. shape distortion.

ANS: D REF: p. 30 OBJ: 9