

***Patient Care in Radiography 10th edition Ehrlich
Test Bank***

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Chapter 02: Image Quality Factors

Ehrlich: Patient Care in Radiography: With an Introduction to Medical Imaging, 10th 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. Which term is defined as a measure of current flow rate in the x-ray tube circuit?
- mAs
 - kVp
 - Exposure time
 - Milliamperage

ANS: D REF: p. 25 OBJ: 1

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

ANS: A REF: p. 28 OBJ: 4

5. When all other exposure factors are equal, which exposure time would produce the greatest quantity of x-rays?
- 1 millisecond
 - 10 milliseconds
 - 0.1 seconds
 - 0.01 seconds

ANS: C REF: p. 27 OBJ: 2

6. Magnification is affected by
- OID only.
 - SID only.
 - both OID and SID.
 - 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
- digital radiography (DR).
 - computed radiography (CR).
 - a film/screen system.
 - digital fluoroscopy.

ANS: B

REF: p. 26

OBJ: 8

8. Radiation exposure is directly proportional to
- OID.
 - kVp.
 - mAs.
 - 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
- high contrast.
 - sharp detail.
 - low contrast.
 - poor detail.

ANS: A

REF: p. 31

OBJ: 10

10. What is used to determine if the exposure factors were correct on a digital image?
- Exposure indicator number
 - Visual clues (too light or too dark)
 - Technique chart
 - Optical density number

ANS: A

REF: p. 28

OBJ: 13

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

ANS: A

REF: p. 23

OBJ: 4

12. Image detail is affected by
- mAs and kVp.
 - kVp and SID.
 - 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. picture archiving and communications (PACS).

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. Which statement is *false* regarding digital annotation?
- a. Annotations should be added outside of imaged anatomy.
 - b. Annotation of side markers has replaced the use of traditional inherent markers.
 - c. Annotation may be used to add explanatory notes for the radiologist.
 - d. Annotation may be used to specify the patient position or projection, i.e., upright, cross-table.

ANS: B REF: p. 27 OBJ: 13

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